NAVY CIVIL ENGINEER

SPRING '80

50 PUBLICATION YEARS

SEABEES

Career opportunities as an officer of the U. S. Navy Civil Engineer Corps

Construction and maintenance of the Navy's shore and support installations is just one of the responsibilities of the engineer managers of the Navy's Civil Engineer Corps. And qualification is not limited to the civil engineering discipline, as the Corps requires graduate engineers of mechanical, chemical, electrical, industrial and construction disciplines and architecture too! As a commissioned officer of the U.S. Navy the young engineer is offered greater opportunity to develop quickly a professional career with the added potentialities of an exciting overseas assignment, professional registration and graduate studies! The young officer may be assigned to construction contract administration, public works management or with a Naval Mobile Construction Battalion, the historic Seabees, plus many individual and unique positions.

Engineering students and counselors are invited to explore the multifaceted world of the Navy's Civil Engineer Corps by contacting their local Navy Recruiter for specific details. An informal visit with a Civil Engineer Corps officer to discuss the personal and professional benefits of a Navy career can be arranged by the same Navy Recruiter.

Call toll-free 800-841-8000 now if you desire instant information from the Naval Recruiting Command. If you're a good student, and want to be a better engineer, the chances are you'll do best by investigating the Civil Engineer Corps of the U.S. Navy.

ON THE COVER

A normally land-based crane undergoes harbor tests after being mounted on a naval barge. The new concept is being tested by the Civil Engineering Laboratory for use in container loading and unloading. *(Photo by PH2 Harry Weddington)* Back cover portrays glimpses of the Naval School, Civil Engineer Corps Officers, where newly commissioned officers receive initial training. *(Photos by PH2 Jeff Hilton)*

NAVY CIVIL
ENGINEER
(USPS 434-090)
VOL. XX, No. 3

Published Quarterly By
NAVAL FACILITIES ENGINEERING COMMAND
Alexandria, Va 22332

DONALD G. ISELIN
Rear Admiral, CEC, USN
Commander
and
Chief of Civil Engineers

WILLIAM M. ZOBEL
Rear Admiral, CEC, USN
Vice Commander
and
Deputy Chief of Civil Engineers

The Navy Civil Engineer is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20401. Price $1.25 per copy. Annual subscription rates: $5.00 for domestic subscribers; $6.25 for foreign subscribers. Send remittance only to the Superintendent of Documents. Entered as a controlled circulation publication at San Bernardino, Calif.

POSTMASTER

Send address changes to *Publication office:*

The Navy Civil Engineer, Code C20M, Naval School, Civil Engineer Corps Officers, Port Hueneme, CA 93043. Tel: (805) 982-3104; Govt. Autovon 360-3104; Federal Telecommunications System (FTS) 799-3104.

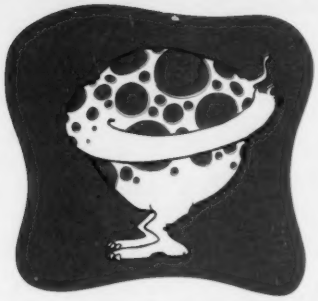
Issuance of *The Navy Civil Engineer* (NAVFAC P-330) is approved in accordance with Department of the Navy Publications and Printing Regulations, NAVEXOS P-35. It does not alter, amend or supersede official regulations, orders or directives. Cost of printing is charged to appropriated funds for maintenance and operations of the Naval Facilities Engineering Command.

The Navy Civil Engineer is intended for the information of Regular and Reserve personnel of the Civil Engineer Corps, United States Navy, and key civilian employees of the Naval Facilities Engineering Command, subordinate commands and other mission-oriented activities.

All material accepted for publication by the Editor becomes the property of the U.S. Navy without recompense to the originator.

Manuscripts for editorial consideration and inquiries should be directed to the Editor at the publication offices, address listed above.

HAROLD WELSH
Editor
BILLYE GRYMWADE
Associate Editor
LOIS CHAVEZ
Design
RITA VASQUEZ
Circulation



WHAT IS IT? This character and many others from the pen of William Brack are well identified on pages 3 to 6.

THE WESTERN DIVISION of the Naval Facilities Engineering Command and its area of responsibilities are featured on page 12.

SEABEE RESERVISTS journey 5,000 miles to their active duty training site. The story begins on page 26.

IN THIS ISSUE

Call It An Editorial 3
By Harold Welsh
As a prologue to more formal acknowledgment of this periodical's 50th year of publication, the Editor comments on the state of today's communications.

Contributing For Publication—On These Or Other Pages 7
By Editorial Staff—The Navy Civil Engineer
Amplifying the Editor's remarks, the editorial staff offers a quick guide for professional manuscript preparation, trusting that future editions may become more readable, more creditable.

Readers Survey Results 10
The readers 'lay it to' the editorial staff with the results of the 1979 Readers Survey. The survey, established in 1968, is believed to be the longest established consistent of government publications.

Visitations To Field Operations—Western Division 12
By Jim Benson
Introducing a new series of brief journalistic visits to the major field commands of the Naval Facilities Engineering Command. Educational for new readers; informative for more senior subscribers.

Public Works Technical Notes 19
This edition's brief technical suggestions include a simple correction to increase security of chain-link gates and fencing; and an announcement of newly available facilities publications for purchase.

Gasohol 20
By CDR John R. Swistock, CEC, USN
Individual motorists and transportation specialists should both be interested in the results of a thorough test of the feasibility of the mixed fuel at Naval Weapons Support Center, Crane, Indiana.

3 Major Sins 23
By William H. Speck
The command's counsel writes of the overall aspects of three recurring problems of any government's operations—fraud, waste and abuse—and the legal aspects surrounding them.

The Theory of 75% 24
By CAPT J.A. D'Emidio, CEC, USN
A senior captain of the Civil Engineer Corps reflects upon his personal philosophy in job performance and relations with superiors and subordinates.

Seabee Reservists 28
Unsigned
A Navy Reserve unit from Arizona and California serves two weeks active duty training on Guam in billets of their Navy specialties or ratings, that they will actually fill in case of Reserve augmentation to the active force.

And the Rains Came 30
By PH1 Dave Fraker, USN
This early spring the Calleguas Creek bursted its banks and flooded areas of the Point Mugu Pacific Missile Test Center. Seabees from the nearby Construction Battalion Center at Port Hueneme responded with relief measures that also became a valued interagency exercise.

Speaking From Topside 32
By RADM Paul R. Gates, CEC, USN
Today's professional environment includes both external and internal characteristics, the latter resting squarely upon an individual whose duties may range from office messenger to admiral.

CALL IT AN

Editorial

By HAROLD WELSH

Pursuant to documentation criteria promulgated by the Executive Department, purveyors of thought processes are mandated to overview the material created prior to inscribing to insure that the language infrastructure is without encumberance, and is compendiously complemented without adscititious insertions.

If you easily read the preceding paragraph, you have a strong digestive system or time to waste! It will not be surprising, however, if sooner or later such an edict will arrive on your and my desk "augmenting" the Presidents' desires to think before you write—and then to write clearly, concisely and completely.

Any editor's desk becomes a litter box of written material, but the top of a government editor's desk resembles the bottom of a stockyard—mostly waste. And sadly, most of the material originates from the levels of government that should be most in tune with the Presidents' desires. Please note that the reference was to the plural Presidents, because every chief executive within modern memory has ordered, cajoled, pleaded and demanded that readability become the criterion for government correspondence and publications.

Historically, however, four elements have interfered in the simple transfer of thoughts into writing: the legal profession, the academician, the professional manager, and more recently the computer technician.

Lawyers, who came into full professional stature during the early part of this century, later became the lawmakers and quite naturally those laws had to be interpreted by lawyers. However, laws, it was decided, needed to be "implemented" and "guidelines" established before they would be "disseminated" or ladled to the public.

But one lawyer, who also happened to be President, needn't be ashamed of his composition which was delivered in November 1863 at Gettysburg, Pa.

If the law was understandable, i.e., "Thou shalt not kill," implementation could and would obscure the original meaning prior to "dissemination" to the public. Hence, the pseudo-legal clerks could implement and disseminate the following: "The destruction of life form is absolutely prohibited."

Then, successors to the new breed (known then as bureaucrats) with self-justification "updated" the revised tenet to read: "The wanton, willful, intentional and malicious cancellation of an individual's life experience is stringently not authorized." Further tracking of the implementation cycle is unnecessary.

Recognizing that the human tendency is to improve or to progress, we suspect that Moses was guilty of "implementation" by creating the sonorous "Thou shalt not kill," from the Original Version of "Don't kill."

It is difficult to determine if the academicians spawned legal terminology or whether they discovered its meritable worth from the solicitor-barrister-counsel triad. In any event, the academicians, later to be known as educators, developed obscurantism into what has become an exact science in itself.

It is interesting to note that today's professional educator is not a teacher nor an instructor and in fact is disdainful of the connotation. The edu-

ONGOING SELF-EVALUATION
of the IN-HOUSE ACRONYM'S ESCALATION

". . . The third goal or attribute each manager must work toward is to become practical and clear. He must avoid the temptation to be esoteric and academic. The idea is not to impress people, but to solve problems. Simplicity is a synonym for clarity. Keep it simple, especially in writing. Simplicity of language does not mean poverty of thought. Successful individuals don't write to impress people; they write to get things done. Be practical and examine all the angles. Don't assume that if a solution is legally or technically accurate that it is also operationally workable. Finally, listen for clarity in your speech and examine your written material for conciseness. If your meaning is fuzzy you either don't understand what you are saying; you don't know how to say it; or you don't really want others to understand. All the above constitute a waste of time."

Rear Admiral Kenneth P. Sears, CEC, USN
Address to Graduates
CECOS, 9 December 1977

cator is solely a proponent of a philosophy of education. Teaching? To hell with that, Socrates!

The first three decades of the twentieth century have seen what was commonly known as civil servants develop into administrators and/or managers. This has resulted, particularly in government, in the professional manager. The fact that the person is totally unfamiliar with the product or method to be managed is immaterial.

Management became an exciting new philosophy to government in the early '60s, particularly within the defense establishment. Prior to its introduction, most bureaucrats sniffed with suspicion at the term because it was primarily identified with a known enemy, "the private sector." But following the cue from "higher echelons," the former administrator (didn't that really mean pencil-pushing?) found the term "management" quite comfortable. The term manager was, of course, further relished—didn't administrators just perform the menial tasks assigned by the manager?

The rather rapid change of managerial assignments enabled the manager to absorb some of the trade talk, jargon, scientific terminology and specialized nomenclature to which he was exposed. With this brief vocabulary enrichment program, the manager was endowed with a wealth of terms that his baffled subordinates should recognize as intellect.

Further, with copies of Bartlett's *Familiar Quotations* and Roget's *Thesaurus*, the manager could declarify the obvious and render the reader in awe of scholarly quotes and masterful definitives.

Last entering the group of alleged culprits that have compounded the written and spoken word of government came the computer technician. First, let us recognize that the computer is a business machine and nothing more. It has not and will not take the shape of R2D2 or C3PO. To be honestly blunt, the computer is a high speed combination of a filing system, calculator and typewriter.

Somehow, but undoubtedly with encouragement from the initial operators, computer operation became computer technology and with that term came the aura of mystique that is so prevalent today. Trade talk of the operators inputting information for output which should or should not be on the printout entered governmental language eagerly.

No longer would we render, submit, inform, refer, or forward, but we would input for a later comprehensive output possible on a printout (or outprint?). The term programmed (simple computer talk, that) became an ominous replacement for trained, educated, instructed—"Personnel will be programmed for instant compliance with . . ." This author will *never* be programmed for instant compliance.

Each trade or profession has its terminology, the references being created for easy understanding among the users. The printing and publishing industry abounds with terms and phrases with which we could, if we chose, burden and befuddle the reader. Particularly, it enables the editorial type to demean the inexperienced with a caustic, "You don't know what *recto* means?" (To return such arrogance, one should reply, "No, and I'm really not interested.") Or the printer asking the young brokerage employee, "What kind of stock do you want?" The youth could answer, "Oh, AT&T, I guess." *(cont'd)*

A young person entering the military service is first baffled, then entranced with the new language that abounds. Once learned and understood, it makes for full membership in the organization and enables the novice to baffle, and perhaps entrance, the non-military.

However, unless one is writing for and speaking to a specific public, i.e., the legal public, the academic public, the publishing public, or for that matter the horse-collar-making public, the trade talk, unless it is generally known, should be omitted. After all, isn't the idea to relay a message of general interest or importance to the general public?

Consequently, in our effort to inform the general public that embodies the various publics, words and terms should be chosen for the general acceptance. Winston Churchill relished the use of short and old words; the old words most of all, he observed. How long would his historic "blood, sweat and tears" survive as "hemoglobin, perspiration and saline droplets"?

The frustration of the reader confronted with a maze of acronyms, archaic terms and obscure definitions should hardly be the intent of any author. Certain essayists and novelists resort to the same technique by lacing their material with unknown or difficult to ascertain foreign words and phrases. To make certain that the author's cosmopolitan knowledge is not overlooked, and that the reader's illiteracy is stressed, these words and phrases are often italicized. Take for instance the last paragraph of the last chapter of a cliff-hanging mystery novel:

"Who was it—if not the butler?" cried Penelope as she adjusted her *beignet,* which had fallen loosely over her shoulder.

"Certainly not the constable's cousin?" she implored, with a high-pitched *lashkar.*

Hercule, a wry smile breaking his *chapote,* took a sip of his favorite *chantier* and replied, *"Kennst du das land wo die citronen bluhn?"*

"Why, of course," replied Penelope, now flushed with *joya.* "How could I have been so stupid . . ."

Darkness had now fallen in the *bahut achcha. . .* The End. . . . .

Our language is daily enriched with metaphors; many of the best are sadly shared by too small an audience. A gifted speaker or writer creates his own or selects rough gems and polishes them for manuscript adornment. The mass-produced metaphor, word or phrase becomes an extremely cheap and unimaginative product.

Take the very descriptive noun *impact.* We know of only two correct usages in recent years: the impact that *Skylab* made in The Outback (the Australians really can output!) and the economic impact resulting from the actions of the OPEC oil cartel.

Be that as it may, daily reference is made to the "impact the new regulation will make upon previously promulgated directives." Can't you just imagine the forceful blow when two pieces of paper collide? Of course, the previous guideline had already *impacted* with an earlier instruction.

The "vogue" or trite words and phrases normally have a short life. What's happened to *charisma*? There seems to be a lack of that, lately.

(continued next page)

Military Verbigarbage

Karl von Clausewitz (1780–1831), still considered by many authorities to be the founding theoretician of modern warfare, had his problems too with verbiage merchants.

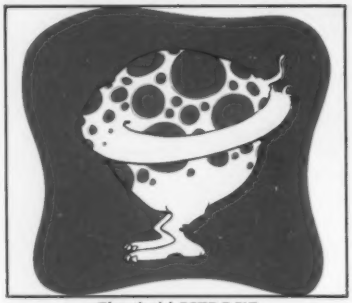
His classic treatise, *"On War,"* which was posthumously published, chides military writers with a direct quotation from a contemporary:

"It is not impossible, perhaps, to write a systematic theory of war both logical and wide in scope. Ours, up to the present, is far from being either. Not to mention their unscientific spirit, in the attempt to make their systems consistent and complete, many such works are stuffed with banalities, commonplaces and twaddle of every kind. If anyone wants a faithful picture of them, let him read Lichtenberg's extract from a Fire Regulation:

If a house is on fire, it is above all things necessary to try to protect the right wall of the house standing to the left, and the left wall of the house standing to the right respectively. For if, for instance, we proposed to protect the left wall of the house standing to the left, the right wall of the house lies to the right of the left wall, and consequently, as the fire also lies to the right of this wall and the right wall (for we have assumed that the house lies to the left of the fire) so the right wall lies nearer to the fire than the left, and the right wall of the house could catch fire, if it were not protected, before the fire reached the left wall, which is protected. Consequently something might catch fire which is not protected, and indeed sooner than anything else would catch fire, even if not protected; consequently the former must be left alone and latter must be protected. In order to impress the matter thoroughly on one's mind, one may merely note: if the house lies to the right of the fire, it is the left wall, and if the house lies to the left, it is the right wall."

Editorial

(continued from page 5)



The timid RETROFIT
SEARCHING for BOTTOM LINES
last believed IMPACTED in TIME FRAMES

The DISESTABLISHMENT of an
UNSUSPECTING TARGETED PAYBACK

And take "the bottom line," which enjoyed a rocket-like existence and even was profoundly expressed by the noted avuncular news commentator.

In our recommendation to write as you speak, a normal response is that "Boy, if he wrote as he spoke, it would be all 'four-letter' words." Four letter words can be extremely expressive in conversation and composition providing their use is restrained. On occasion the four-letter word is truly the most honest and concise summation.

Vulgarity, as beauty, is often in the eyes of the beholder. Take, for instance, a recent Technical Note on these pages referring to a low-flush toilet tested for water and energy conservation. It is coincidental that 98 years ago a 'valveless water waste preventer' was introduced under the sponsorship of the metropolitan water authority of London. The device was highly successful, and the inventor realized a fortune in the manufacture of the instrument (which carried his name) and received a knighthood to boot. His name? Sir Thomas Crapper.

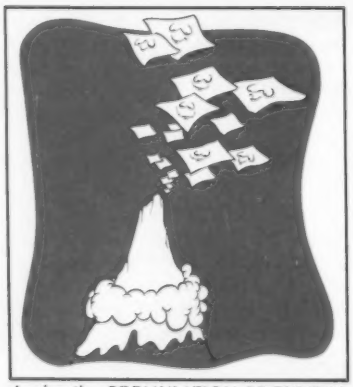
Whereas George Pullman, Rudolf Diesel, the Earl of Sandwich and others enjoy historical prominence to this day for their innovations, Sir Thomas is the unforgotten hero of one of our most valued comforts.

It has probably been presumptuous of us to enter the area where Presidents have failed—pleading, cajoling, demanding understandable and readable English, particularly within *government circles* (how apt this phrase). Particularly when we know that our desk will continue to be swarmed with criteria (seldom, if ever, an honorable lonely criterion), impacts and constraints, tips-of-icebergs, shortfalls (no longfalls, however) and infrastructure parameters.

What a truism Walt Kelley's *Pogo* did utter:

"We have met the enemy and they is us!"

This *really is* a bottom line!



A migrating FORMULATION OF CRITERIA
MAKING AN INFLIGHT DETERMINATION
to TABLE their TRAVEL on a POINT OF
REFERENCE

The speckled breasted FOLLOW-ON
HEDGING on the BOTTOM-LINE of
his/her SHORTFALL

Editors are not mean and cantankerous—well, that is, not **all** editors . . . . .

Contributing for publication--on these or other pages

By Editorial Staff - THE NAVY CIVIL ENGINEER

The Navy Civil Engineer invites and welcomes contributions from readers for publication. The periodical is a professional publication and its standards are the same for other professional and non-governmental publications.

The most important rule concerning submission of material to *The Navy Civil Engineer* or other professional journal is that *the material must be submitted exclusively to the publication chosen.* Do not send copies to another publication until the original has been declined and returned to you. There are two reasons for this mandate—courtesy and copyright law! It is possible, in fact probable, that an interesting well-written article can be accepted by two publications each unknowing that the author has submitted the article elsewhere. The contributor may be exhilarated when two payment checks are received—but only momentarily—when the publishers discover the duplicity and the fact that they own the exclusive copyright. That's when the exhilaration turns to pain for the novice.

All material published in *The Navy Civil Engineer* is not and cannot be copyrighted. As a government publication it belongs to the public domain and may be reproduced without recompense to the original author or to the Navy. Most publishers, however, do not reprint from this periodical without concurrence as a matter of professional courtesy. And they often do reprint. So again, the most important rule for any author in submitting material to any publication is that it must be submitted *exclusively* to one selected periodical at a time.

Press releases, are another matter. They are clearly indicated what they are and that they have been widely disseminated to the media of information. Editors receiving the material may use it solely as news copy or as a news advisory for further story development; or they may not use it at all.

So once again, the most important rule for any author is - - - -.

In preparing the final draft of any article for the *Navy Civil Engineer* (or any publication), material should be typewritten with elite or pica face type, *double spaced,* with lines approximately 57-60 characters (including spaces and punctuation) in length. Avoid script or unusual type faces. All capitals or capitals and small capitals are unacceptable!

Leave about three inches blank at the top of the first page for editor's notations.

Show your title for the article; it may be changed, but it's helpful.

Show your name, rank (if any) and job title—No codes please. Include your business telephone number.

Number each page of your manuscript.

If charts, graphs, or other line art are to accompany the article, please send the original in black ink—a photocopy just doesn't work.

Photos are welcome; no posed portraits please, and avoid contrived poses. *Important:* Photos *must* be black and white, glossy finish, preferably 8″ by 10″ (smaller sizes can be used), and subject and recognizable individuals must be identified on attached separate sheet. *Do not* write with sharp pencil or ball point pen on the back of the photo. The marks press through and can damage the photo.

The information, or suggested caption, accompanying the photograph should be attached by paper clip or attached lightly to the back with *rubber cement* only. Please do not use staples, glue, adhesive tapes or similar material. Further, please don't place arrows, identifying symbols or remarks directly on the photograph. Use a light weight tracing paper over the photograph indicating arrows, symbols etc. and their proper position.

General

Keep sentences short. Keep paragraphs short. Use adjectives with discretion. If you use a superlative, be sure it's justified.

Writers often find the opening paragraph the most difficult part of a good article. The objective is to lead the readers into the subject with a lively statement that will pique their interest and lead to reading the entire article.

Don't hesitate to be innovative to accomplish this.

Example: An increasing problem of great concern to the Navy and the Naval Facilities Engineering Command is the foul-mouth bore, a marine creature that assaults pier pilings with extensive damage and recurrent monetary loss.

Different Approaches: What do you do with a foul-mouth bore? NAVFAC is attacking this marine "termite" in a novel way and saving the Navy hundreds

of thousands of dollars. . . . . "We've got a new way to whip the foul-mouth bore," LT Percy Minnow, CEC, USN, reported to his superiors at Port Gripe, Nev., when he introduced the new gratz plan for controlling the marine borers.

Style

Prior to composing the article, the author should become disciplined to a clear and concise style. The most effective and safest approach is to write as you speak—short, descriptive and grammatically correct words and sentences—rather than affected, multi-syllabled, overused and frequently abused jargon, "vogue" words and expressions.

In short, avoid governmentalese and rely on the more communicative and easily read vernacular.

The material must be written for easy reading and understanding by readers of widely diversified fields and interest. They're not dumb, but they may have little time or patience to pursue the meaning of the "buzz" words so significant to those in your discipline or organization. The readers' time is limited and their patience is perishable.

Verbosity

Contributors should start to reduce verbiage in their first draft—then condense for a final draft. Each contributor can expect that his material may be further condensed (deflated?) by the editorial staff upon receipt or acceptance of the article.

Example: "Electrical illumination devices should be extinguished when not required for use."

Try: "Turn off unnecessary lights!"

Capitalization

The *Navy Civil Engineer* follows a "down" style, as do most leading professional and general circulation publications. This means we minimize capitalization.

Examples: "CAPT WHITE" is appropriate for travel or assignment orders; but for publications, "Captain White" is adequate.

Titles preceding the individual's name are capitalized: "Rear Admiral (or RAdm.) X. Y. Zee, chief of information of the U.S. Navy."

Functional titles following the individual's name are not capitalized: "Melvin T. Occupant, chief marine biologist for the Naval Civil Engineering Laboratory. . . . "

Avoid capitalization of segments of an organizational name: "the widely dispersed *B*attalion. . . ."

"a primary mission of the *L*aboratory. . . ."

"the nation's dependence on its *N*aval forces. . . . "

Titles

Identify individuals by their job title, not by an organizational title, and do not capitalize unless the title properly precedes their names:

"August Zero, value engineer at the Construction Battalion Center. . . . " (*Not*) "August Zero, value engineer, management engineering branch, department of obstruction, plans and control division, etc. . . . "

The title "Mr." is not used in publication, save in reference to the president of the United States, and then only when referring to him personally and in subsequent references: *Mr. Washington.*

All other men (or women, see below) are referred to initially by their given name, middle initial (generally) and surname. Subsequent references use only their last names, a pronoun or their job titles:

Example: "August Zero, value engineer for the Seabee center, was appointed coordinator for the new cost analysis. *Zero* said he hoped the program would get underway by December 10. *He* stressed his hope that the study would reveal. . . ."

The contemporary fad of referring to women as "Ms." is incorrect and lacks authoritative precedent. "Ms" is a long-standing abbreviation for "manuscript" in the publishing business and takes precedence over the more recent and questionable definition. The use of given and last name is equally applicable to women, without the Miss or Mrs. title, and usage for subsequent references is the same as that for males. In the rare cases where given names are possible for either gender (Carol, Jean, Billy, etc.) an exception may be necessary. However, skillful alternative composition is possible.

Example: "Jean Paul Sartre is a man with a decided talent . . ."

"Jean Stapleton, the befuddled housewife in the . . ."

"Jean T. Nicely headed straight for her goal in . . ."

Acronyms

Officially coined and approved acronyms should be fully defined on their first use in the article, then sparingly repeated. Later references can be alternatively described as "the project," "the method," "the system," etc., rather than repetitive use of the all-capitalized acronym.

Example: ASSAULT (Advanced Scientific Studies and Unique Laboratory Techniques) is the newest plan to extricate certain unusual development programs from normal channels. *The system,* recently announced at a Washington conference, is expected to be the forerunner of more accelerated plans.

References

References to authors and/or publications should be integral with the article, rather than carried as separate footnotes.

References to official instructions, regulations, etc., as well as to laws, statutes, legal decisions and the like should be minimal. If essential to fully cite the subject in the article, it should be parenthetical and completely identified:

Example: "The current regulation, NAVFACINST 01234.56b (Control and Suppression of Superfluous Editorial Redundancy, dated 31 December 1973), requires writers and editors to reduce or eliminate excessive verbiage or redundant phraseology."

Codes

Do not use organizational identification codes in referring to a person, persons or organizational unit. A

code is a convenient office address and nothing more. A code knows nothing, does nothing, says nothing. In inter-office correspondence or oral usage, the substitution of a code in referring to an individual or an organization is probably understandable. To a reader remote from the scene, it is not.

Commercial Terms

Proprietary names, trade names, coyrighted material, etc., should not be used in the article. If any of these usages is essential to the article, they should be used in a way that clearly avoids any implication of official Navy approval or endorsement of particular firms, organizations, systems, products or ideas. When reference to particular entities or systems is used in specific contract descriptions, it should be limited to a short statement of fact:

Example: "The architect/engineer for the project was Nerf, Nark, Nord and O'Malley of Meany, Mo."

Numbers

Spell out numbers one to nine; use figures for 10 and up.

Example: "The five staff members moved over 72 tons of paper . . ." Round out large numbers unless the exact amount is essential.

Example: ". . . the $5 million project. . . ."

"The project has been funded for $5,290,500 with . . ."

Substitute the term "million," "billion," etc., for amounts involving a long string of ciphers, or for rounding out large quantities.

Sentence Structure

Use simple sentences as far as possible. Use compound sentences only where continuity of thought is enhanced and the compound relationship is evident.

Example: "The pilings were deteriorated beyond repair and it was evident that the pier must be shut down."

Alternative: "The pilings were deteriorated beyond repair; it was evident this pier must be shut down."

Alternative: "The unrepairable deterioration of the pilings made it evident that the pier must be shut down."

Avoid breaking sentences into numbered or lettered sequences:

Example: "The system's deficiencies are threefold: (a) it is time-consuming; (b) it is too costly; and (c) it doesn't work."

Better: "Three deficiencies of the system are that it is time-consuming, expensive and unworkable."

Puffery

Some writers feel compelled to conclude their contribution with a laudatory, overdrawn accolate for the subject or the people involved.

Example: ". . . and once again the expertise of NAVFAC's skilled cost-cutters garnered enormous monetary savings." "The timely completion of the vital road once again highlighted the Seabee's 'Can Do' spirit."

If the article has been thoughtfully developed and coherently written, the conclusion speaks for itself. The reader who has followed the story this far will judge for himself. □

Change of address?

To expedite receipt of *The Navy Civil Engineer* please forward change of address information to the appropriate office of the subscriber category indicated: (Please allow 6 weeks for accomplishment)

- ☐ *Active duty CEC/Seabee personnel*—No action is necessary. Address change is automatically accomplished by the Naval Military Personnel Command.
- ☐ *Reserve CEC/Seabee personnel*—Forward address change directly to: Naval Reserve Personnel Center Attn.: Code 03 New Orleans, LA 70149. The editorial offices *cannot* accomplish such changes.
- ☐ *Civilian employees*—If employed by PWC, CBC, EFD, domestic OICC/ROICC, notify your local civilian personnel office for change of address records. The editorial offices *cannot* accomplish such changes.
- ☐ *Paid subscribers*—Forward address change directly to: Superintendent of Documents U.S. Government Printing Office Washington, DC 20401. The editorial offices *cannot* accomplish such changes.
- ☐ *Retired CEC officers, civilian employees of NAVFAC HQ*, public works *department* employees, foreign PWCs, foreign OICCs, ROICCs, officers and agencies other than the Navy Civil Engineer Corps and Naval Facilities Engineering Command, civilian educational institutions and categories not otherwise noted, please forward change of address information directly to the editorial offices.

Telephone
Commercial (805) 982-3104
Autovon 360-3104
FTS 799-3104

NAVY CIVIL **ENGINEER**

Code C20M
Naval School, Civil Engineer Corps Officers
Port Hueneme, CA 93043

The Navy Civil Engineer readers' survey (initially established in 1968) continues to be a valuable instrument for measuring the readers interests and desires. The completed surveys with suggestions are forwarded to the Command Editorial Review Board for study.

NAVY CIVIL ENGINEER READERS SURVEY RESULTS 1979

I AM **71** USN **22** USNR **34** USNR (Inactive)
69 Civilian Employee
3 Paid Subscriber Other **8**

I AM ASSIGNED TO
24 NAVFAC **8** ROICC
24 EFD **6** STAFF
15 PWC **20** RESERVE
14 SEABEE **7** CBC
83 OTHER (specify_____)

MY GRADE IS **CDR/LCDR (average)**
GS-12/GS-13 (average) (Rank, Rate, GS-)

I have **18.4** years of accredited education (elementary, high school, college). (average)
I hold a **B.S.** degree in **Civil Engineering (68 hold Masters & Doctorate degrees in C.E. & others)**
I have **7.6** years of government service (civilian and armed forces combined). (median)
I have/have not contributed articles or material to The Navy Civil Engineer. **40** have; **168** have not contributed
I have been a reader of The Navy Civil Engineer for **12.5** years. (median)
I usually read: **58** all; **102** more than half; **46** less than half; **2** hardly any of the contents of The Navy Civil Engineer.

MY RATING OF THE MAGAZINE

	Excellent	Good	Fair	Poor
My *overall* opinion is	93	83	4	1
and of editorial content	75	99	19	2
and of format	103	84	12	2
and of page design	92	86	15	2
and of photographs	96	80	20	3
and of printing and paper stock	114	76	9	1
and of mailing and distribution	112	72	10	3

DELIVERY AND AVAILABILITY

I receive my copy through the mail. **191**
It arrives in good condition. **184**
It does not arrive in good condition. **2**
I receive my copy through Navy distribution channels. **27**
Copies are easily and readily received. **57**
Copies are not easily obtained. **5**
I read my copy in a library or other central source. **3**

OF THE STANDING FEATURES

	I READ	DON'T READ
Speaking from Topside	174	22
Advice of Counsel	138	46
NAVFAC SitRep	164	34
PW Tek Notes	141	58

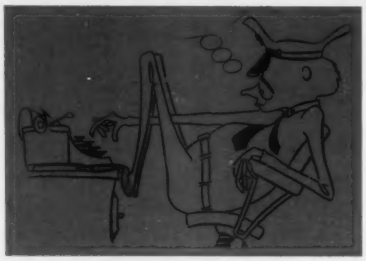
ARTICLE PREFERENCES

	I LIKE	DON'T LIKE
Research and Development	161	21
Management	160	45
Education and Professional Development	142	42
Engineering and Construction	173	19
Technical Articles	157	39
Seabee Operations	141	41
Reserves	90	82
Environmental Subjects	134	47
Energy Management	156	21
Housing	90	95
Historical Features	166	31

FREQUENCY

I prefer to receive the magazine
Monthly **75**
Bi-monthly **46**
Quarterly **70**

The 1979 survey was responded to by 208 readers and represented 1.5% of the general circulation. Of this number, 121 responded with personal comments. The percentage of response, particularly representative of the wide range of duty assignments and geographical areas, is a strong and valid indicator of general readership attitudes. Of further interest is that 40 of the respondents had contributed articles to the magazine for publication. Our thanks to those readers who participated in this year's survey.

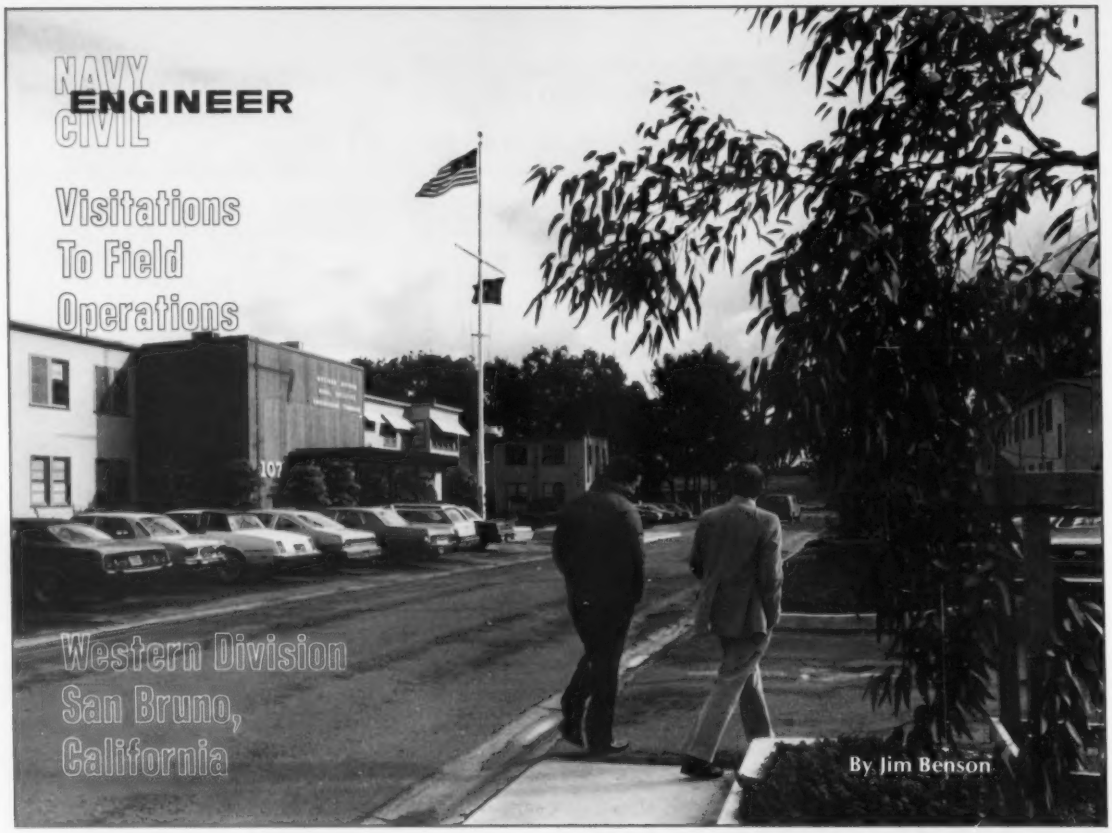


Sample remarks received on 1979 survey forms....

Typical of some of the personal voluntary remarks contained on the Reader's Survey are the following actual quotes, with parenthetical identity and editorial remarks, if any, in italics:

"Generally excellent—some articles tedious." (Capt., Ret.) *We agree.* . . . "I really appreciate the 'new' appearance of the NCE since Spring of '79. The appearance is worth the cost." (LCDR, EFD) *Again, we agree.* . . . "You're still doing a great job. Merry Christmas." (RADM, Ret.) *And a belated one to you, sir!* "Don't use the orange-black and white or dark brown and white with color. Photos would present a more distinct, quality issue. The rest is good." (LT, USNR-R) . . . (*Could be.*) . . . "The best issue yet—I read it from cover to cover." (GS-12, CBC) . . . "Since Coast Guard civil engineering is so small we pick up a lot of State of the Art and ideas that are helpful to us. Keep up the good work." (CDR, USCG) . . . "Shorter, more direct articles . . . everything is 'approved,' filtered and sterilized *before* printing." (GS-14, EFD) *Not necessarily so, sir, as any participant of author-editor hassles can tell you. Also, ever read our opinion articles?* . . . "Great job. Keep up the good work. Strive to stay practical-oriented." (GS employee, Marine Corps) . . . "Address label invariably ends up being pasted over key words or interesting photograph." (2 LCDRs, EFD & NCF) *We have been working on that. Look at this issue.* . . . "This (magazine) is virtually my only contact with my former service and colleagues and I enjoy it very much." (LT, USNR-R) . . . "I think you are doing a superb job, your document stands far above other engineer publications." (Major, USAR) . . . "I thoroughly enjoy *The Navy Civil Engineer,* it is a welcome link to my continuing interest in the Corps." (CDR, Ret.) . . . "I appreciate receiving the *Navy Civil Engineer* because it keeps me somewhat in tune with what the Navy—particularly what the CEC is doing. It is my main source of Navy information while attending (graduate) school." (LT, USNR-R) . . . "Since graduation from CECOS in 1974 I have read the *Navy Civil Engineer* cover-to-cover and have learned much. Please keep them coming." (BUC, USN) . . . "Keep up the good work. Your publication is always interesting, the articles professional and well done." (Paid subscriber/industry) . . . "Captains and supergrades who write these articles tend to write from an Ivory Tower and with very few exceptions are totally out of touch with reality." (LCDR, USNR-R) *We'll speak to them about that!* . . . "I believe you are doing a good job telling the NAVFAC story." (GS-14, CEL) . . . "My responsibilities and function in my civilian employment are very similar to my Navy duties. I have always profited from reading articles in *The Navy Civil Engineer.*" (LCDR, Ret.) . . .

To which we add, a grateful thanks to all!



• San Bruno, Calif.

The Western Division, Naval Facilities Engineering Command (WESTDIV), is one of the six engineering field divisions (EFDs) responsible for the planning, design, construction and facilities management support of Navy shore activities within a geographical assignment. WESTDIV serves the Eleventh and Thirteenth Naval Districts which includes all naval and marine corps activities in nine western states and Alaska. Serving over 150 activities WESTDIV is the largest EFD in the Naval Facilities Engineering Command (NAVFAC).

WESTDIV has 67 Civil Engineer Corps officers and three enlisted persons. There are over 1,000 civilian employees, with 700 located in San Bruno, Calif., which is divisional headquarters, and 300 in field offices. In addition to the comptroller, facilities planning, acquisition, and facilities management departments, WESTDIV organization includes the Resident Officer in Charge of Construction, Pacific (ROICCPAC) Department and two separate Officer in Charge of Construction (OICC) organizations—OICC Elk Hills and OICC Navy Regional Medical Center (NRMC) San Diego.

ROICCPAC Department provides continental U.S. support to Pacific Division Officers in charge of construction and other assigned units. This includes architectural and engineering services, receipt and transshipment of government and contractor owned materials, review and approval of shop drawings, procurement contracts and other logistical support as necessary.

OICC Elk Hills' major function is to accomplish for the Department of Energy the planning, design and construction of certain crude oil production and distribution facilities at the Elk Hills Naval Petroleum Reserve near Bakersfield, Calif.

OICC Naval Regional Medical Center (NRMC) San Diego is tasked with accomplishment of the planning, design and construction of the vast replacement facility for the NRMC San Diego. Florida Canyon has been selected as the site for the new medical center. Existing structures will either be given to the City of San Diego, demolished, or in one case retained for use of the Naval School of Health Sciences, basic school for enlisted hospital corpsmen.

The comptroller department is responsible for all administrative support including financial management, management analysis, automated data processing, communications, mail, purchasing, and security. Under the Integrated Disbursing and Accounting System, private contractor payments are averaging only nine days from receipt in the comptroller department.

The facilities planning and real estate functions at WESTDIV are significantly affected by two unique factors—the size of Navy and Marine Corps real estate holdings and the competition for land in the West, especially in California. Over

3.5 million acres of real estate—more than three-fourths of the Navy and Marine Corps total—is in WESTDIV territory. Land in the west is often public land under administration of the Bureau of Land Management or influenced by the Coastal Zone Management Act of 1972 and subsequent state implementations. With land costs ranging from $100,000 to $200,000 per acre, near key bases like Naval Air Station (NAS) Miramar and Marine Corps Air Station (MCAS) El Toro, it is easy to see that the stakes are high.

Each military construction or land acquisition project is reviewed for conformance with Shore Facilities Planning System criteria, master plans, environmental and safety guidelines and intergovernmental coordination. Careful review at the beginning of the planning and programming stages is necessary before submission to higher defense authority and ultimate congressional approval.

PLANNING & DESIGN at Western Division is overall—from initial concept of specific details and includes structures high above the ground to petroleum reserves far underground.

Naval installations also provide much needed habitat and open space for fish and wildlife in areas of increasing urban expansion. In the Pacific Northwest, over 13,000 acres of forest land are managed by navy foresters.

The acquisition department is currently responsible for WESTDIV's large design, construction and related contract administration functions which for FY80 will execute total construction work in place (WIP) in excess of $500 million.

Construction effort is administered through 23 ROICC offices at the various Navy and Marine Corps activities in this geographic area as well as for certain Air Force commands. The department's principal workload stems from the annual congressionally approved Military Construction Program. WESTDIV's share of this program averages $200–300 million each year and represents approximately one-third of the total Navy program.

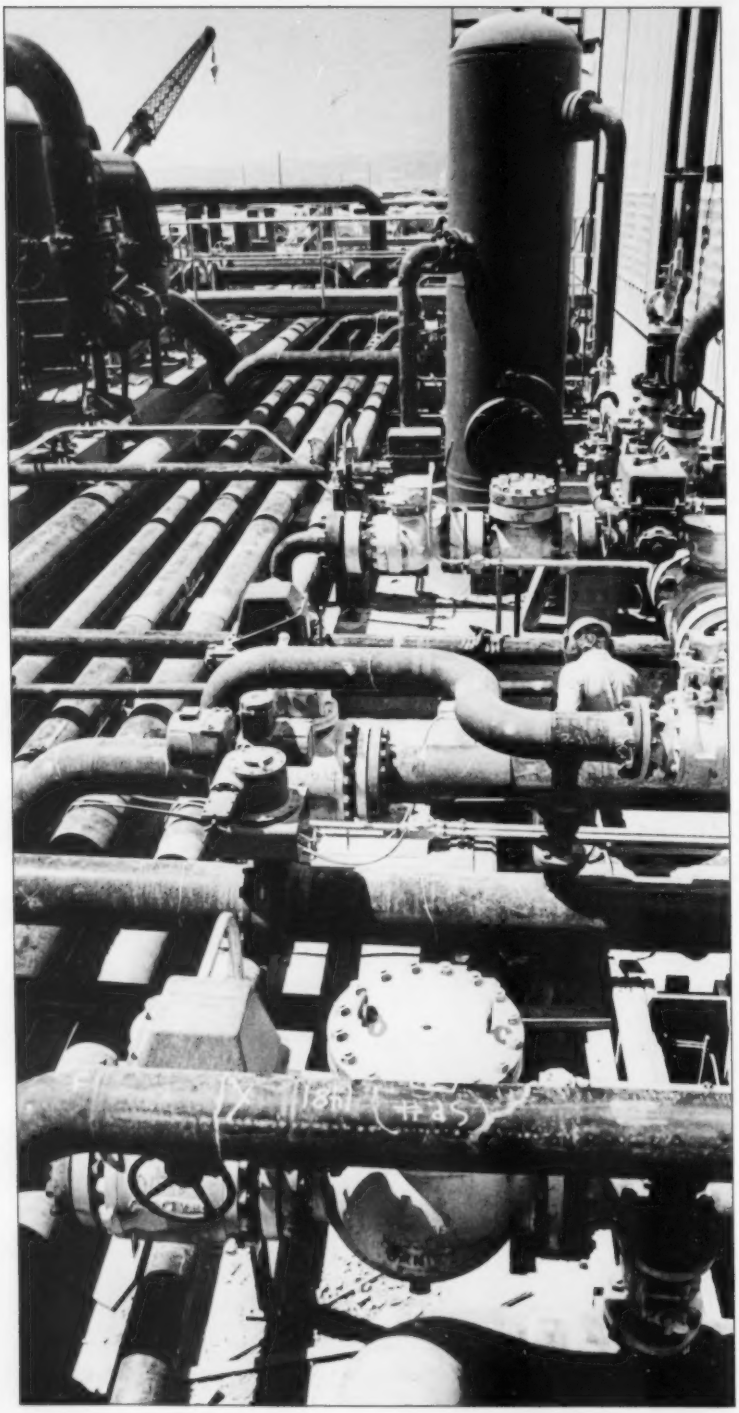
In addition, the annually funded projects and the centrally managed programs (pollution abatement, energy technical applications program, and housing maintenance and repair), which have increased dramatically in recent years, now involve a design/construction workload of over $100 million each year.

The third major workload source is from the non-appropriated funds

(continued next page)

THREE HEADS ARE BETTER—Western Division's "team concept" in design problems results in more imaginative solutions and consequently overall project enhancement.

(continued from preceding page)



program which now averages $50 million for new and improved welfare and recreation facilities including commissaries and Navy exchanges.

With about one-third of the Navy's shore activities, people, and fleet units in the WESTDIV area, the facilities management department has a sizeable and important workload. In an area of significant environmental initiatives, WESTDIV administers a large environmental enhancement program. Over $2.5 million pollution abatement and $1.3 million Occupational safety and health special projects are scheduled for funding in FY80. Other significant programs include energy engineering and conservation, and increased commercial/industrial activity assistance and training. Utility procurement alone was $145 million in FY79 with 2,200 contracts, representing one-third of total Navy volume.

Important cogeneration contracts have been made in San Diego and geothermal development initiated at China Lake. Refuse-fuel steam plants are planned in San Diego and Long Beach. The first Navy metropolitan area telephone system is being implemented through competitive procurement in San Diego, with an operational target date of January 1982.

The WESTDIV Housing Division manages 22,000 units of Navy Family Housing with an annual budget that is $105 million in FY80. The transportation division assists the Transportation Equipment Management Centers in administering

CONSTRUCTION CONTRACTS that completed new industrial facilities for the Elk Hills Naval Petroleum Reserve (Calif.) were administered by Western Division, NAVFAC and on-site team of Civil Engineer Corps officers.

WESTERN DIVISION's expert administration of the design and construction of the Naval Regional Medical Center at Bremerton, Wash., will again be reflected when the engineering field division undertakes the huge medical complex to be located in San Diego, Calif.

LEMOORE (Calif.) NAVAL AIR STATION—One example of a WESTDIV master plan transformed into an operating reality.

14,000 units of transportation equipment and supports three naval shipyards, the Pacific Trident Submarine Base at Bangor, Wash., and other weapons and industrial activities with technical assistance and management of 1,900 units of weight handling equipment.

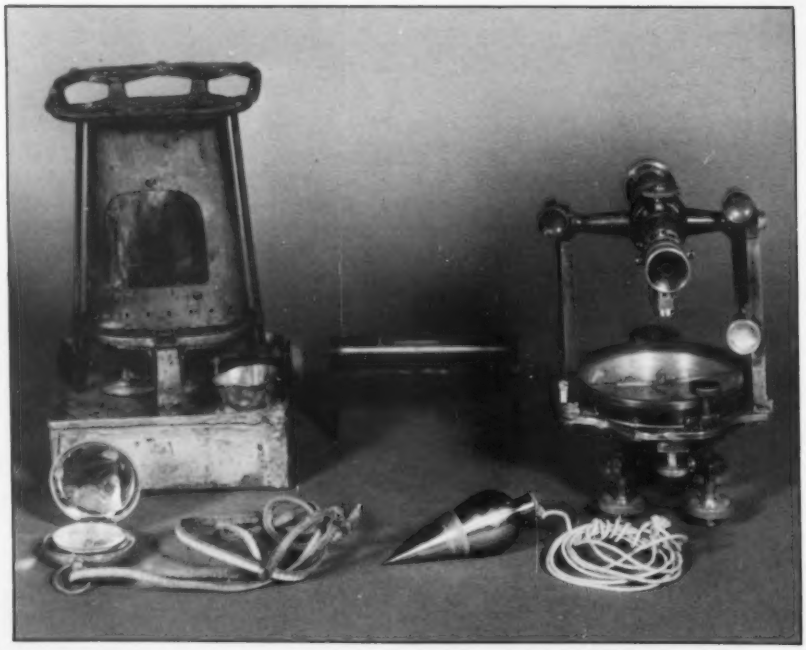
WESTDIV also administers the Navy's largest public works and service support contract at the Trident base. In addition to all public works functions, the contract provides all supply department, security, administration, and unaccompanied-personnel housing operations at a cost of $24 million in FY80.

Workload may fluctuate. Programs will be modified. Emphasis on specific functions can change. However, at WESTDIV a concerted effort is placed on the ultimate EFD mission—service to the operating forces. □

more pages for NAVFAC/C

DEMOLISHED—Seabee volunteers from NMCB-62 remove the remains of a building, evidence of the power of a Spring tornado at Gulfport, Miss.

DR. MICHAEL YACHNIS, chief engineer, NAVFAC, has received the award for Professional Achievement in Engineering for his outstanding contributions to science and engineering. The award was conferred by the Council of Engineering and Architectural Societies at Washington, D.C.

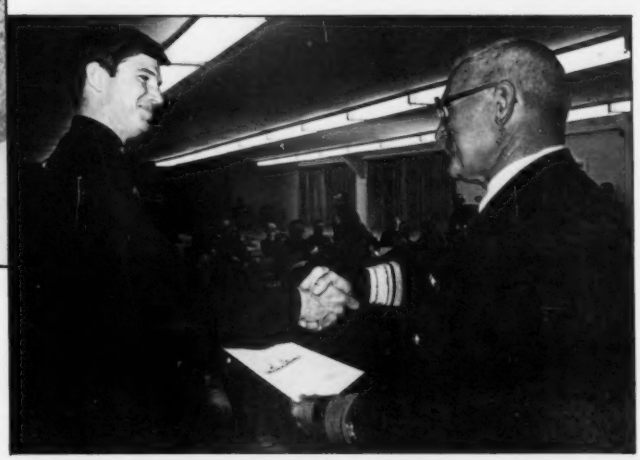


REAR ADMIRAL ROBERT E. PEARY, CEC, USN, relied upon his pocket compass, alcohol stove, and transit for survival as he battled the Arctic tundra in his search for the North Pole. These articles and others, which helped him to achieve this lifelong goal on April 6, 1909, were recently donated to the CEC/Seabee Museum, CBC Port Hueneme, Calif., by his grandson, Edward Peary Stafford.

or the CEC/SEABEE family album

SEABEES from NMCB-40 and NMCB-1 have been granted honorary citizenship in the Republic of Dominica for their disaster recovery work following hurricane destruction late last year. Capt John C. Fraser, Jr., CEC, USN, ComCBLant, accepts a Republic of Dominica Plaque from Clement J. Zablocki, Chairman of the House Committee on Foreign Affairs (right), assisted by committee member Congressman Jonathan B. Bingham.

MAPPING out the Canadian Route for RNMCB-20's "F" Company, Buffalo, N.Y., a recent operation known as "Cold Feet" included 25 U.S. Naval Reserve Seabees and members of the Royal Canadian 2nd Field Engineers Regiment.



LCDR CHARLES S. PRAHL, CEC, USNR (at right), former CECOS faculty member, accepts certificate of CECOS reserve training from RADM Peter R. Brown, CEC, USNR, commander, 1st Reserve Naval Construction Brigade. RADM Brown is shown above with CAPT F. G. Kelley, CEC, USN, who commands CECOS.

Naval Facilities Engineering Command

SITUATION REPORT

ENCROACHMENT - Many of our naval activities are located in rapidly expanding areas where they are subjected to strong pressures from encroaching communities. The Navy's Air Installations Compatible Use Zones (AICUZ) program is based on studies of each Navy and Marine Corps air station which pinpoint areas of community exposure to accident potential and high noise. Based on these studies, operational alternatives have been implemented to reduce noise, and local officials have been urged to adopt compatible land use controls. While the AICUZ program is achieving a good measure of success, other elements of encroachment are of serious concern. Particularly critical are urban pressures at port facilities, ranges, radio stations, and weapons storage activities. CEC officers should recognize encroachment signs early and seek means to mitigate these pressures.

(NAVFAC Code 09)

OICC TRIDENT - Effective 1 October 1980, OICC TRIDENT will relocate from Bremerton, Wash., to Kings Bay, Ga. Kings Bay has been designated as the preferred alternative location for an Atlantic Coast TRIDENT support base. OICC TRIDENT will turn over the remaining construction program at NAVSUBASE Bangor to WESTDIV and will assume responsibility for the construction in support of the POSEIDON submarine squadron at NAVSUBSUPPBASE Kings Bay. Design has been initiated on a projected $1.4 billion MILCON program in support of an Atlantic Coast TRIDENT base.

(NAVFAC Code OT-09P)

NAVOSH DEFICIENCY ABATEMENT PROGRAM - Public works officials, industrial hygienists, and safety officers should know that centrally managed funding of the Navy Occupational Safety and Health (NAVOSH) is available to eliminate occupational safety and health hazards. Generally, small deficiencies must be corrected with activity funds. Larger deficiencies that exceed the special project thresholds defined in OPNAVINST 11010.20C may be submitted for central NAVOSH funding. A new Naval Facilities Engineering Command instruction (presently in draft form), "NAVOSH Deficiency Abatement Programs for Navy Shore Activities," and corresponding suggested changes to OPNAVINST 5100.23G of 8 May 1979 may be obtained by contacting the Navy Environmental Support Office (ATTN: Joy Erdman, A/V 360-5244), Port Hueneme, California.

(NAVFAC Code 05)

PUBLIC WORKS TECHNICAL NOTES

Preventing Violent Entry Through Chain-link Gates

A system for substantially increasing the resistance to forcible entry of typical chain-link gates at Naval stations has been developed. Chain-link gates can be broken through fairly easily by ramming the gate with an automobile, truck, etc.

The locking mechanism and the hinges on the gate are the weakest components of the common chain-link gate. With the Civil Engineering Laboratory system, these areas are reinforced by chain and wire rope. The energy from the forcible entry attempt is transferred from the center of the gate (the locking mechanism area) through wire rope to the side gate posts and deadman concrete anchors. Since the wire ropes are interwoven, one has effectively produced a single wire rope barrier across the opening. The system is simple and unobtrusive and can be effective without hampering the normal operation of the gate.

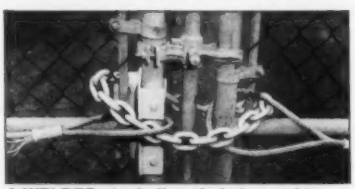
This system can be easily fabricated from the following items: ½-in.-diameter wire rope, ½-in.-diameter chain, ¼-in.-thick steel plate, 2-in.-diam. pipe, swaged-on clamps, concrete, eye bolts, and assorted nuts and bolts.

The eye bolts are set in a 2x2x2-foot concrete pad. The ½-in.-diameter wire rope is strung from the eye bolts to the gate posts where another section of wire rope is interwoven with it. This second wire rope is strung across the inside face of the gate and is fastened to the vertical/horizontal pipe member.

The crucial component of the system is the chain used to fasten the gates together. This chain must be welded steel alloy with Brinell hardness 280 to 310 to be effective—a chain that is resistant to cutting by bolt cutters. The chain is passed through the wire-rope loops and then fastened together using a high-security padlock and a specially designed slotted-staple hasp/box assembly.

Additional information may be obtained from Gary Cook, Code L61, Civil Engineering Laboratory, Naval Construction Battalion Center, Port Hueneme, CA 93043; Autovon 360-5927, Commercial (805) 982-5927.

EYE BOLTS are set in a concrete pad with ½-in.-diameter wire rope strung from the eye bolts to the gate posts.



A WELDED steel alloy chain is used to fasten the gates together. The chain is passed through the wire-rope loops. Outside view of the gates is shown.

THE CHAIN is fastened together with a high-security padlock and specially designed slotted-staple hasp/box assembly.

Shore Facilities Manuals Now Available For Purchase

The following publications are available from the Superintendent of Documents, Government Printing Office, Washington, DC 20402. Remittance should accompany all orders in the form of check or money order, made payable to the Superintendent of Documents. A Superintendent of Documents deposit account number may be used.

Title	*Stock Number*	*Price*
Definitive Designs for Naval Shore Facilities, Part 1	008-050-00123-2	$33.75
Part 2	008-050-00117-8	25.75
Change 1	008-050-00129-1	1.90
Change 2	008-050-00158-3	3.75
General Handbook—General background information on the standards, describing the presentation of the data and the procedure for applying it on estimating maintenance work.	008-050-00140-2	1.80
Engineering and Performance Standards—A Heating, Cooling, Ventilating Handbook.	008-050-00141-1	2.50
Ship To Shore Hose Handling Operations	008-050-00161-5	3.00
Janitorial Handbook	008-050-00155-1	3.00
Machine Shop, Machine Repairs Handbook	008-050-00145-3	4.00
Maintenance Manual, Petroleum Fuel Facilities	008-050-00150-0	8.30
Masonry Handbook	008-050-00146-1	3.75
Moving Rigging Handbook	008-050-00137-2	2.00
Oilspill Control For Inland Waters and Harbors	008-059-00017-9	6.25
Paint Handbook	008-050-00172-1	3.25
Pipefitting, Plumbing Handbook	008-050-00173-9	4.25
Organization and Function for Public Works Departments	008-050-00133-0	1.50
Roads, Ground, Pest Control and Refuse Collection	008-050-00147-0	3.75
Sheet Metal, Structural Iron and Welding Handbook	008-050-00174-7	5.50
Inspection of Shore Facilities, Volume 1	008-059-00018-7	2.40
Inspection of Shore Facilities, Volume 2	008-059-00019-5	3.25
Maintenance Management of Shore Facilities	008-050-00160-7	4.25
Trackage Handbook	008-050-00144-5	2.10
Public Works Maintenance, Wharf Building Handbook	008-050-00135-6	3.00

GASOHOL

... fuel mixture proves effective at Indiana naval installation.

By CDR JOHN R. SWISTOCK, CEC, USN
P.E., Mass.
Director, Public Works Department
Naval Weapons Support Center

• Crane, Ind.

When one reviews the proven and potential world petroleum reserves, and the probable consumption of energy during the next decades, the obvious conclusion is that most petroleum-based fuels will have to be replaced within the next 20 to 50 years.

The substitution for petroleum-based fuels will have a profound effect on world transportation which has been developed around and almost completely dependent on petroleum derived fuels. The relatively long range problem is a potential short range *critical* situation when one considers that most industrialized nations depend upon imported petroleum, with all its hazards in today's political world.

This situation has kindled a tremendous interest and research into alternative fuels. For internal combustion engines, alcohol fuels could provide an attractive substitute for gasoline and even diesel fuel, particularly in the short and midterm, if not a long term solution.

Methanol and ethanol are the two major alcohol fuels being developed in different parts of the world. Methanol can be readily developed from coal, natural gas, wood, etc. Ethanol is derived from grain and glucose biomass as well as other cellulose material and natural gas or petroleum.

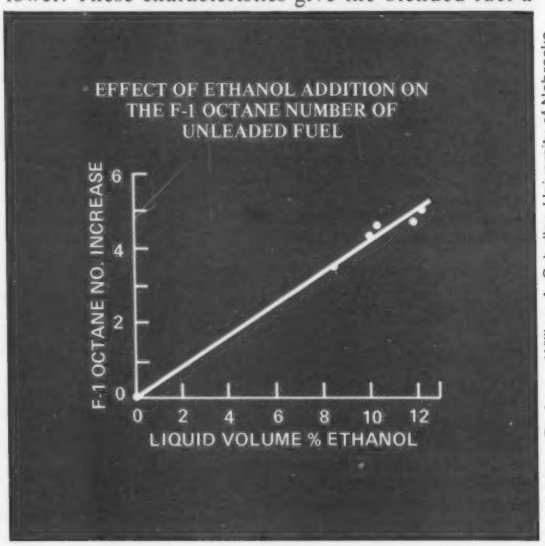
Current research work in Germany is primarily with methanol, especially coal derived, and an extensive amount of biomass derived ethanol fuel development is taking place in Brazil. In the United States and Canada, development of both alcohol fuels is progressing. Research work is also progressing on synthetic gasoline and other fuels developed from coal and other sources; however, this article deals with the use of alcohol as a blend with gasoline for internal combustion engines.

Brazil has used sugar cane derived alcohol to supplement gasoline supplies to varying degrees since the 1920s. Currently, that nation is committed to a 20% substitution of alcohol for gasoline by the end of 1980.

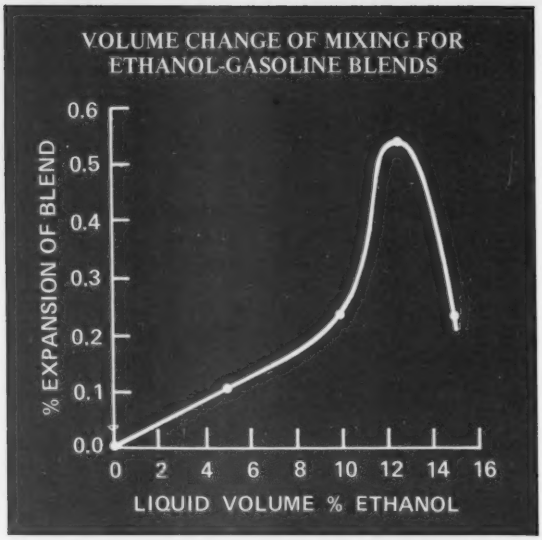
Development work on methanol as an alternate fuel is being carried on in Germany and other countries of western Europe since coal and lignite are more available than the biomass necessary for large scale ethanol production.

In the United States, coal and oil shale developed methanol and synthetic gasoline are very promising for the long run but plant development poses large environmental problems and substantial capital investment. For the near term at least, biomass-developed ethanol will probably be the base of most alternative liquid fuels in the United States; however, the potential also exists for economically obtaining ethanol from the petroleum by-product, ethylene.

Ethanol and methanol have similar fuel characteristics and are quite different from gasoline; therefore, we would expect the alcohol/gasoline blend to have characteristics different from gasoline. The energy content per unit volume of alcohol is about two thirds that of gasoline, the flash point and ignition temperature of alcohol are higher and the vapor pressure of alcohol is much lower. These characteristics give the blended fuel a



Graphs from Professor William A. Scheller, University of Nebraska



higher octane rating, the potential for more efficient use of energy, and lower measurable exhaust emissions.

On the other side of the ledger, the reduced energy content per unit volume makes the blend a leaner fuel than gasoline. Further, alcohol is a strong solvent and is soluble in water; therefore, the blends tend to be more corrosive than gasoline and phase separation of water is a potential problem. However, both laboratory and field tests indicate that corrosion and water problems with 10 to 20% alcohol in the blend should not be significant enough to affect operation under normal or even severe conditions. Some modern engines designed and tuned for extremely lean fuel air mixes could theoretically have performance affected by the leaner fuel, especially at higher altitudes.

The increased anti-knock performance and decreased emission with the alcohol blends should make possible engine carburetion and compression changes that would significantly increase fuel efficiency and greatly reduce any problems associated with the leaner fuel. These same characteristics may also allow the use of lower quality crudes to refine gasoline for blends and could allow more gallons of gasoline to be produced from each barrel of crude oil.

According to a Univeristy of Nebraska study, the ten percent alcohol blend has the research octane number increased more than four points above that of the base gasoline. (Figure 1.)

Another desirable characteristic of the blend identified in the Nebraska study is the expansion that occurs when the alcohol and gasoline are blended. As indicated (Figure 2) from the Nebraska study, the volume of the blend could be as much as a half of one percent larger than the added volume of the gasoline and alcohol.

Laboratory and field tests indicate that hydrocarbon and carbon monoxide pollutants are significantly reduced with the blended fuels. Nitrous oxide emissions, however, show a slight increase.

A discussion of alcohol for use as an automotive fuel would not be complete without at least a cursory review of potential sources. Ethanol can be produced from any biomass, as well as from natural gas and petroleum. The essential process used to obtain ethanol from biomass is fermentation, followed by distillation. Biomass can be subdivided into three broad categories that each require different processing to obtain ethanol.

Sugar containing plants such as sugar cane, sugar beets, fruits, etc., can be directly fermented to obtain alcohol. This method of obtaining alcohol has been used by man since biblical days.

In starchy plants such as grain and potatoes, the starches are converted to sugars before fermentation. The process requires heating (cooking) to produce a mash which is suitable for fermentation. To produce fuel quality alcohol, the fermentation process must be followed by distillation.

Cellulose is contained in most agriculture and forest products and this material represents a huge potential resource for liquid fuels. Cellulose material requires an

(continued next page)

ENERGY EFFICIENCIES FOR PRODUCTION OF ABSOLUTE (100%) FERMENTATION ETHANOL
From: T. A. Sladek, Ethanol Motor Fuels and "Gasohol"
Colorado School of Mines 1978

	Feedstock	Energy Input Btu/gal	Energy Output Btu/gal	Energy Efficiency (%)
Operating Plant in U.S.	Corn	140,000	84,000	60.0
Current Design	Corn	108,000	84,000	77.8
Current Design	Corn	130,000	84,000	64.3
Design Data	Thai Sugar Cane	54,000	84,000	156
Design Data	South African Maize	77,000	84,000	109

(continued from preceding page)
elaborate and expensive process such as that used in processing wood pulp by the paper industries to produce sugars that can be fermented and distilled. For this reason, large near term production of ethanol from this source is not likely. However, current research at Purdue University and other places will probably result in much more efficient processes being developed which will have the potential of economically producing ethanol from agriculture, forest products and waste.

To put this all in proper perspective, one must remember that current distillation processes in the United States have been designed, constructed and are operated to produce a product that retails for five to ten dollars a quart (or 4/5 quart) rather than a dollar or two *a gallon.* Data tabulated by the Colorado School of Mines (Figure 3) show the energy required to produce ethanol from a current production plant, and conceptual designs for proposed plants.

While currently operating plants probably use more total energy than they produce in end product, there are mitigating factors which must be considered. Depending on the heat source for electricity and steam in the plant, a large part of the energy could be biomass or coal derived.

Modern plants in Brazil are being designed to use sugar cane waste for most of the fuel to produce the production energy of the plant. In this case the energy efficiency of the plant is not of as much concern as it is biomass energy. Using modern heat recovery methods and efficient processes can significantly reduce production energy requirements as indicated by the design data. (Figure 3.)

At the Naval Weapons Support Center, the gasohol concept was integrated into the command's comprehensive energy conservation program to reduce consumption of petroleum-based fuels. The center encompasses over 63,000 acres of land, has 280 miles of roads and streets and consumes 40,000 gallons of gasoline monthly. Government ground transportation accounts for 10% of the total energy consumed, and while significant reductions have been realized in recent years, other forms of energy use have shown greater reductions.

For the initial use of gasohol, the center's fleet of 20 security vehicles was chosen. These vehicles log over 70,000 miles per month, and refuel from their own dispensing facility. The vehicle fleet consists of 1975 (or later) models requiring unleaded fuel. Good operating statistics on the fleet using unleaded gasoline were available.

In May 1979, after inspecting and cleaning the underground tank, the program began with the delivery of gasohol from the local Farm Bureau Cooperative. However, with the shortage of gasoline developing in early summer, gasohol sales to the center were terminated on 30 June. During this six week period, 11,000 gallons of fuel were consumed with no adverse problems noted. Fuel consumption increased very slightly, and drivers reported better drivability and performance with the fuel. As this time period was short and in warm weather conditions, the results could not be considered conclusive.

The security vehicles converted back to regular unleaded fuel with no problems noted. On 16 July, 175 gallons of excess ethyl alcohol were blended with 1575 gallons of unleaded gasoline for the first locally blended, or "Crane gasohol." This small amount lasted eight days and the fleet again went back to unleaded gasoline. Again, no problems were noted in changing between blended fuel and gasoline.

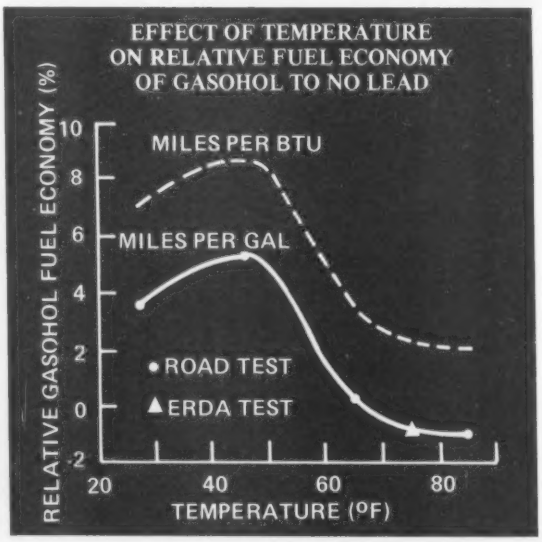
The ease in blending and assuring adequate quality control of this small amount of fuel stimulated interest in a larger more permanent blending operation. A 10,000 gallon DODX railcar was cleaned and prepared for alcohol storage in August, with the purchase of 6000 gallons of SDA (special denatured alcohol, 95% ethanol with 5% methanol), a large scale operation of blending fuel at the tank farm was started.

SDA was purchased rather than pure ethyl alcohol as the blend is toxic and cannot be used for human consumption. Fuel is blended on a volumetric basis at the time it is transferred to the tanker truck for delivery to the underground dispensing tank. Five hundred gallons of alcohol are pumped into the tanker truck, followed by 4500 gallons of unleaded gasoline. The liquids blend easily and after a 4-mile road trip the fuel is discharged by gravity into the storage tank for dispensing to the vehicles.

Quality control tests are run to ensure proper and adequate blending and mixing of the fuel. Fuel efficiency, operating and maintenance characteristics of the vehicles are the same as with the commercially purchased gasohol. Blending fuel on board is slightly less expensive than purchasing blended fuel; however, both are more costly than unleaded gasoline.

The first three months experience indicated a slight decrease in fuel efficiency (miles per gallon); however, results for October, November and December indicate an average increase of approximately 4% in fuel efficiency.

These results are consistent with that reported in the



Nebraska study. The study included a two million mile test of gasohol in Nebraska and indicated that the fuel efficiency of gasohol compared to gasoline increases when the ambient temperature is colder than 65°F. (Figure 4.) This figure indicates that up to 5% increase in fuel efficiency can be expected in cool weather. If fuel efficiency is computed on the basis of BTU/mile, the blend is more efficient.

Drivers report significant improvements in vehicle drivability, improved starting and cold engine operation with gasohol. A careful examination of fuel filters, carburetors, and spark plugs indicate that the blended fuel is clean and causes no problems with these components.

Operating results with the 10% blend are generally positive and in February the alcohol content was increased to 12.5% in the 20 vehicles. Current plans are to convert the remaining 71 vehicles of the center that require unleaded gasoline to the ten percent blend. Some fuel handling facility modifications will be required to efficiently blend over ten thousand gallons of gasohol monthly. Vehicles not requiring unleaded fuel will continue to use regular gasoline.

The results of the Crane gasohol program to date indicate that partial substitution of gasoline with alchohol is feasible, easily and safely accomplished in the field using established fuel handling procedures; however, *fuel costs are slightly increased.*

The increased costs are not quite as significant as the initial price difference would indicate, because of increased performance due to higher octane, increased volume of the blend, and apparent increased fuel efficiency at cooler ambient temperatures. □

Advice of Counsel

3 Major Sins

"Fraud . . . some deceitful practice or wilful device, resorted to with intent to deprive another of his right"—Black's Law Dictionary

WILLIAM H. SPECK
Counsel, NAVFAC HQ

"Fraud, waste and abuse"—the government, of course, is against all three.

Recent attention by the newspapers, presidential and navy secretary reiterations, and notice by the General Accounting Office (or in some cases grand jury indictments) requires again defining fraud, waste and abuse.

Fraud and abuse are statutory, criminal offenses, for the laws in these areas prescribe and punish. Fraud ranges from bribery of public officials through doing business with firms in which the official has an interest, to presenting false claims to the government. Abuse ranges from stealing or embezzling government property, through using government motor vehicles or penalty envelopes for other than official purposes, to any misuse of government property, facilities, or position for personal purposes.

As criminal matters these offenses require proof of positive, intentional acts, a criminal intent involving knowledge of the nature and consequences of the act, and liberty to act, established to the jury beyond reasonable doubt. Although proof may sometimes be easier as part of a conspiracy—concerted action to commit an unlawful act—so that all elements of the crime may not have to be proved for each participant, criminal convictions are the rare, last-resort sanction.

Waste as such is not a crime, for the statutes do not dictate prudence and frugality. The unnecessarily costly, the duplicative, the futile, are not punished though the costs may be greater. Fraud, waste, and abuse are all subject to personnel sanctions.

Examples are too well known:—the contractor who solicits invoices from suppliers at a higher price than he pays, the employee who steers work or relaxes standards for firms in which he has interests or do him favors, the "gold plating" to make work show better than it is or the concealment of defective work, the work done twice or done uselessly, etc.

No cure is certain, or even near certain, for fraud, waste and abuse; but the following steps may help. Each manager must know his job thoroughly and be alert for discrepancies that may indicate defalcations. Internal, independent checks must test accounting for funds, custody and use of property, and performance.

Problems must be checked by independent audit with all information and suggestions of what to look for furnished the auditors. Where fraud is discovered, or suspected, the evidence (documents, work, etc.) must be meticulously identified and preserved, and the matter must be reported to the Chief of Naval Material. In appropriate situations non-responsibility determinations, suspensions, and debarments may be used as sanctions. Where criminal convictions have been obtained, civil liability may be based upon those criminal judgments.

Sea(bee) Stories

PLEASE STAY OFF THE TUNDRA

There were no trees on Adak, Alaska, in 1959.

Although only God can make a tree, the Seabees determined that they would improve the barren landscape.

So when the next ship was unloaded, there were half a dozen 3- to 4-foot-high trees which were planted by the Seabees and are still growing.

There's a sign today which reads, "Adak National Park."

The sign is larger than the trees.

The Theory of 75% and other personal reflections

By CAPT J. A. D'EMIDIO, CEC, USN
P.E., N.J. and Ohio

• Washington, D.C.

Many articles are presented on the technical aspects of the career of a naval civil engineer. I would like to share with the reader, however, some *non-technical* aspects of my 25 years of experience.

During this period, I developed certain principles, methods of operations, and impressions that I would like to present, in particular, to junior officers. Perhaps some may want to consider these thoughts.

Loyalty. There is a basic and fundamental difference between personal loyalty and job loyalty. You have certainly heard of personal loyalty. I think every boss would like to have employees love him or her. It doesn't always happen that way. You may find that in an organization, someone will not give you his personal loyalty and you may also find the reverse true, that there is someone to whom you, for one reason or another, cannot give *your* personal loyalty.

After all, the world *is* made up of many different people with varied characteristics.

Although it is preferable that personal loyalty be present in an organization, as such loyalty promotes a more harmonious environment, its absence is not tragic. What is important is that personal loyalty and job loyalty must not be confused. It is loyalty to the assigned job that is essential. Whether you like your boss or not, you must keep plugging 100% of the time to get your job properly done. By doing so *you* will be demonstrating excellence in leadership, operations, and management.

Therefore, loyalty to your job (in my case the Navy) should not be breached or blemished by personal loyalties. Keep the two separated; don't confuse them and your military service will be of greater value to you and the Navy.

Service to the Customer. The Civil Engineer Corps is service-oriented.

Every boss would like to be loved

The officers, enlisted personnel, and civilians of the Naval Facilities Engineering family must make special efforts never to lose sight of their responsibilities of customer support. Fleet commanders, major claimants, commandants and naval shore activity commands are our customers and require and deserve our professional service. After all, supporting these organizations is the reason for our existence and is really what it's all about.

As a means of emphasis, I'd like to mention the key to good business . . . customer recognition. To recognize the customer requires us to candidly identify the customer:

- The most important person in the business.
- Not dependent on us—we are dependent on him.
- Not an interruption of our work—but is the purpose of it.
- Not doing us a favor when he requires assistance—we are in business to serve him.
- Not a cold statistic—persons involved are human beings with feelings and emotions like our own.
- Is a part of our business—not an outsider.
- Not someone to argue or match wits with.
- A person who brings us needs —it is our job to responsively fill those needs with quality professional service.
- Is deserving of the most courteous, attentive and quality

After all... no decision is a decision

treatment we can offer.

- Is the lifeblood of this and every other service-oriented organization.

The Navy has hired us as professionals to solve problems in particular areas of work. Every day of our working life, we are faced with solving many technical, management and administrative problems.

Generally, with digging and some research (coupled with initiative and imagination), we can find many of the solutions readily at hand. In solving problems, it is necessary to take full advantage of all the resources available. Too often less experienced persons run to the boss for direction and decision without doing their own staff work. When possible, learn to make decisions within your areas of responsibility and relieve the boss of the day-to-day problems. Keep the monkey off the boss's back as much as possible so he can concentrate on more important problems. Good judgment is required as to when a problem is big enough to be brought forward. This is the crucial decision point of a maturing leader.

Another part of problem solving is to keep in the forefront the fact that we are to support our organization's primary goals. There are a lot of routine and ancillary jobs to which we are assigned and must accomplish that don't always relate to, but distract from, our primary mission (i.e., sitting on boards, writing reports, etc.). We must, however, be sufficiently disciplined so that we never take our eyes off the ball. It is easy to forget this particular principle if we get involved with mundane day-to-day issues of a hectic world.

With respect to problem solving and decision making, it is important to remember the *Theory of 75%*. If we delay every decision until 100% of every tiny loose string is tied off, perhaps no decisions would ever be made. As far as I am concerned, *no decision* on a problem needing resolution *is* a decision. It is a decision to do nothing. It is better to get your facts as best you can and make a decision than not to make a decision. After all a "no decision" is a decision—*to do nothing*. I would rather see people make an error of commission rather than an error of active omission. In other words, they at least tried to do something even though they may occasionally make a mistake. Generally, if we can make a correct decision 75% of the time, we're in good shape.

You have heard it over and over again that "you've got to communicate." This is another subject that must be repeated over and over again. Communication is not only up and down the command chain, but also laterally. Too often, our people don't talk to their peers in another department or division with respect to their operations. Don't pick up the phone when you can walk a couple of doors, sit down and have a cup of coffee, and discuss the matter with a fellow worker.

Think Big. It is easy to start working at a job emptying the incoming basket and filling the outgoing basket without doing anything else. You can get away with it for a while, but not for long. You will find that there are many things that have to be done and some of them are more than just the mundane, routine things that you see every day.

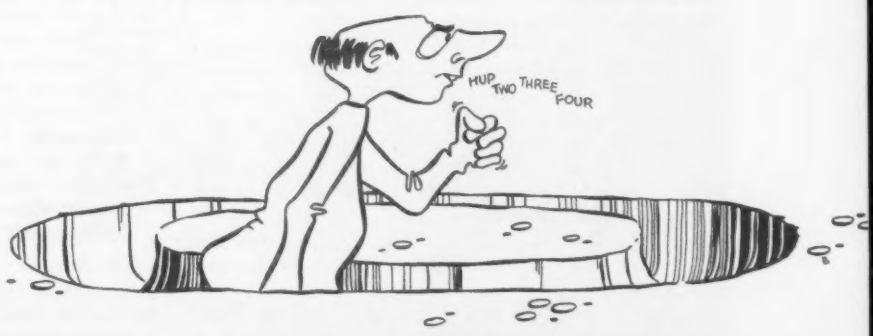
Step back occasionally and get a better perspective of your operations with the objective of improving them. The first time you do, and suggest such improvement, demonstrating some initiative, you are going to get the reaction, "Well, we can't do it that way because this is how we've always done it," or "they won't allow it." Don't accept that approach or those answers.

People resist change, but measured intelligent change is absolutely essential in the Navy, or any business. Otherwise, we can become stagnant. The Navy can stand fresh thinking on almost everything we are doing today. If somebody says, "They won't allow it," find out who "they" are. In most cases, you will find that it is someone with less competence, talent, and experience than you have in making decisions.

You may also hear: "I've got 20 years experience on that job or program," etc. If you analyze the situation, more likely than not, the individual has one year of experience repeated 19 times. When you think something has to be done a different way from the way it is being done now, don't give up, even if it gets you knocked down a couple of times; use initiative and demonstrate persistence.

The last item I would like to discuss deals with a way of life—I believe that no matter what you do in our business, that you should *learn* to be happy, have a certain zest for living—be enthusiastic and optimis-

(continued next page)



One year's experience repeated 19 times

The Theory of 75%. . . *(continued)*

tic. By so doing, variety and youthfulness remain with a person at any age, which becomes infectious with respect to family and co-workers. We all know people in their 50s or 60s who grow younger every day because they are interested in study, play, sports, other people, church work, or just being useful. Some kids at 18–19 *age every minute.* Why? You'll find that they are bored—have *lost interest*. It's too bad and unnecessary.

Because military people work hard long hours, it is necessary that we should be able to have a little sense of the ridiculous and be able to laugh at ourselves. As a matter of fact, people should laugh more. Know why? It's because the human body can never grow an ulcer or be angry and laugh at the same time. It is physically, chemically, biologically, mechanically impossible. It's as if the Lord has said, he who laughs—no ulcers—no anger—isn't that great!

Building things such as bridges, roads, airstrips, etc., are what we mostly read about. This article dealt with building people. I firmly believe that if we build the right motivation and optimism in our people—then the *things* get built more expeditiously and efficiently. □

Abstracts of Theses

By LT LOREN W. SMITH, CEC, USN
E.I.T., Guam

The thesis abstracts in this issue deal with facility planning from two different perspectives.

Lt Donald Allen has studied the efforts of a local community to cope with the rapid growth resulting from the construction of the *Trident* submarine base in Bangor, Wash. He examines the management of growth from the viewpoint of the local citizens and relates in considerable detail the organization for planning and controlling growth used successfully in Kitsap County.

At the detailed planning level, Cdr Kenneth Kelley has studied the economics of facility planning and design with a view toward minimizing the life cycle costs of buildings. He proposes economic analysis methods for reducing the initial costs and subsequent expenditures to a common basis which reflects the true cost of owning and operating facilities.

Accelerated Urbanization Management: A Review of How Kitsap County Handled Trident-Related Growth

Key Words: Urban Growth, Urban Planning, Urbanization Management, Trident.

Abstract: Kitsap County was a semi-rural area with a population of approximately 100,000 residents and a normal annual growth rate of about 1,000 people. With the announcement that the Navy would build a $550 million *Trident* submarine base in that county, the local government was faced with a projected growth of 27,000 residents over an 8 to 9 year period—a threefold increase in the normal population growth rate.

This thesis describes the successful efforts of the local government to cope with that rapid increase in demand for housing, schools, roads and social and governmental services. The methods utilized by that county to plan and control the rapid growth are described in detail including the roles played by coordinating committees, technical advisors and political representatives at the state, local and federal level.

Kitsap County, in order to manage rapid growth, developed and implemented new land-use plans and created a coordinating organization specifically to manage the growth associated with the *Trident* facility. Their successful approach to this endeavor could serve as a model to other communities faced with an accelerated growth situation.

Reference: *Allen, Donald Curtis, LT, CEC, USN* "Accelerated Urbanization Management: A Review of How Kitsap County Handled Trident Related Growth," University of Washington, March 1980.

Thesis: Master of Urban Planning.

Life Cycle Cost Analysis in Building Design

Key Words: Life Cycle Cost Analysis, LCC, Construction Costs, Maintenance Analysis, Economic Building Performance Model.

Abstract: The Life Cycle Cost (LCC) approach relates future operating and maintenance costs to present dollars through the discounted cash flow methods of economic analysis. While LCC analysis has been part of good architectural design for many years, it is receiving even greater attention as the increasing cost of energy makes it clear that architects, engineers and owners must plan with greater emphasis on the total costs of building ownership.

This thesis investigates formulas and procedures currently used in Life Cycle Costing and illustrates the LCC method as applied to operating, maintaining and replacing facilities. A discussion of methods used by the Navy and other federal agencies for determining the present value of future expenses is included as well as a discussion of the problems involved in estimating future costs. Consideration is given to an inflationary economy and the possibility of differential price variations such as increasing energy costs which may not follow the patterns of the economy as a whole.

The thesis concludes with numerous examples of the LCC method as applied to building planning and design decisions and recommendations for collection of data to form a basis for future decisions.

Reference: *Kelley, Kenneth C., CDR, CEC, USN* "Life Cycle Cost Analysis in Building Design," Naval Postgraduate School, December 1977.

Thesis: Master of Science in Management.

AD #A048671

The Moreell Library at the Naval School, Civil Engineer Corps Officers, maintains a loan copy of these papers. For theses with an "AD" number a personal copy may be purchased from the Defense Technical Information Center, Cameron Station, VA 23314 ($3.00 hardbound or 95¢ microfiche).

Outstanding federal engineer

Atlantic design chief honored

John M. Davis, director of the design division, Atlantic Division, Naval Facilities Engineering Command, Norfolk, Va., was recently named outstanding Federal Engineer for Facilities Design and Construction as well as the Naval Facilities Engineering Command Engineer of the Year at the National Society of Professional Engineers (NSPE) annual National Engineers Week Dinner in Washington, D.C. Appropriate presentations were made by NSPE President Sammie F. Lee and Rear Admiral D. G. Iselin, Commander, Naval Facilities Engineering Command (NAVFAC).

Davis was among 36 nominees from the Veterans Administration, Naval Facilities Engineering Command and U.S. Army Corps of Engineers who vied for the top honor. There were ten nominees for the Naval Facilities Engineering Command NSPE honor.

A registered engineer in the States of Virginia and Colorado, Davis

JOHN M. DAVIS

holds a bachelor's degree in mining engineering from Virginia Polytechnic Institute and State University and a master of science degree in engineering management from George Washington University.

The award-winning nomination cited Davis as "an astute and enterprising administrator, who gathers about him highly qualified, competent and energetic employees who are attracted by his management philosophy and the challenging work assignments. His ability to elicit superb performance from his subordinates has successfully led his division through steady increase in volume and complexity and work without a change in the number of personnel, while maintaining a cost effective, quality design product."

A knowledgeable public speaker, Davis frequently represents the Atlantic Division (LANTDIV) at civic and professional meetings and presents the Navy's position on command related topics. He serves as an active member of the National Society of Professional Engineers, Virginia Society of Professional Engineers and the Society of American Military Engineers. □

Television star premieres new women's program

Loretta Swit—star of the TV series *MASH*—recently spent a day at the Navy Public Works Center, San Diego, Calif. The celebrity was invited to the center to participate in a presentation about women working in blue-collar trades which have historically been performed by men.

The slide presentation is titled "Successful Women In the Trades" (SWIT). Miss Swit appears in many of the slides and also does the voice-over narration for the presentation, which is being produced by the Public Works Center's Federal Women's Program.

During her visit, Miss Swit toured many PWC facilities, and spoke to a number of the Center's female employees who have opted for nontraditional jobs such as welders, locksmiths, machinists, painters, and laborers.

During her tour of PWC facilities, Miss Swit met with Captain W. E. Crosson, CEC, USN, PWC commanding officer, who presented her with a personalized PWC plaque as a token of appreciation for her participation in the SWIT slide presentation.

Loretta Swit receives organization plaque of the Public Works Center from commanding officer, Capt. W. E. Crosson, CEC, USN in appreciation for her visit.

Seabee Reservists

... a public works unit travels over 5,000 miles to its training site

· Guam

Members of Naval Reserve Public Works Center 119 have completed their two-week Active Duty Training (ACDUTRA) on Guam.

PWC 119 is unusual because its mission is to support a specific mobilization site overseas. PWC 119 is to augment U.S. Navy Public Works Center Guam forces in case of war or national emergency.

There are five detachments in this Naval Reserve command, located in Bakersfield, San Diego, Encino and Santa Ana, Calif., and Phoenix, Ariz.

Commanding officer of PWC 119, CDR Thomas M. Wilson, CEC, USNR-R, of Vista, Calif., maintains that reserve units need to work at least two weeks each year at their mobilization sites to retain their military readiness. Budget restrictions allow only one-third to one-half of the reservists to annually participate in training overseas. The current training plan calls for rotation of the force to permit each person to train on location on Guam once every three years.

There were 63 officers and enlisted personnel in this year's ACDUTRA overseas group.

When the reservists arrived on Guam, they were placed in billets that matched their Navy specialties or ratings.

After completing a formal indoctrination/training program, officers were placed in charge of projects which involved work in PWC Guam

GOING UP?—Joseph Jackson (left) public works elevator mechanic and Richard M. Reneaux of Sylmar, Calif., complete repairs on a medical elevator. Jackson is an employee at the Naval Public Works Center, Guam; and Reneaux a construction electrician in the Naval Reserve.

HOIST AWAY—Sheila Carillo, repair helper, assists Steelworker Robert McFarland of Phoenix, Ariz., in transferring an electric motor for rewinding. Reservists, employees and active duty Navy personnel train side by side during the two-week tour of duty on Guam.

NO 'LIGHTS-OUT'—Emergency power equipment for Naval Regional Medical Center on Guam is inspected by Claro Enriquez of the PWC electrical staff and CE1 Reneaux. Reserve personnel participate in every phase of the Public Works Centers regular responsibilities.

FRAMED!—Seabee Reservist Builders complete frames for louvered windows being installed in swimming pool bathhouse. From left are BUCN Robert Vanpelt, North Hollywood, Calif.; BU2 Robert Lingo, Alhambra, Calif.; and BU3 Dan W. Pynes, Phoenix, Ariz.

HITTING THE ROOF—Daniel Macial of Anaheim, Calif., and a Navy Seabee Builder places roof sheathing on a pavilion at the Naval Regional Medical Center in Guam as part of his reserve training duties during his unit's two-week stay in the American Pacific outpost.

departments and at customer activities.

Projects included a survey of erosion at SASA Valley and Fena reservoir, organizational studies for a new Housing Activity Civil Engineer position, and development of a long-range maintenance plan for Naval Air Station Agana.

The officers of the unit participated with their PWC and customer activity counterparts in analyzing the selected reserve mobilization manpower requirements for PWC Guam. They surveyed customer activities to determine their increased operational needs under mobilization conditions. This was translated into increased needs for services provided by PWC Guam.

Enlisted personnel work assignments alternated between projects and operational assignments in the shops of the transportation, maintenance, utilities, facilities engineering and service departments. The aim of field and operational tasks is to provide senior enlisted personnel with supervisory work experience throughout the public works center. Field projects were selected to acquaint personnel with most of the major Department of Defense activities that receive public works services from PWC Guam.

Projects completed during this year's ACDUTRA include: moving and leveling 3,000 cubic yards of fill for the Naval Communications Area Master Station/Western Pacific; demolishing a nosedock hangar at Naval Air Station Agana; reroofing a pavilion at Naval Regional Medical Center; rewiring a number of NAS Agana and Naval Station buildings; and constructing cabinets and installing sound systems in the naval station galley.

According to CDR Wilson, the 1980 ACDUTRA accomplished all the goals originally set. Next year's ACDUTRA plans are underway with goals of increased familiarization with Guam's civilian work force and development of individual training plans keyed to job descriptions. □

and the rains came....

By DAVE FRAKER, PH2, USN

DIKES BREAK and the normally dry Calleguas Creek floods the outer boundaries of the Pacific Missile Test Range, Point Mugu, Calif., during mid-February. Some 3,000 members of the naval installation were forced from their homes causing great inconvenience, but fortunately, no tragedy.

JOINT VENTURE of Seabees from nearby Port Hueneme Construction Battalion Center, an Army Corps of Engineers contractor and the Ventura County Flood Department shored up defenses against the flood waters. Working during continued heavy rainfall, workers were able to stall further damage.

RESTORED CHANNEL, completed by the joint effort, hopefully would contain further forecasted flooding. The skies, however, cleared and the flooded lowlands became the major cleanup operation.

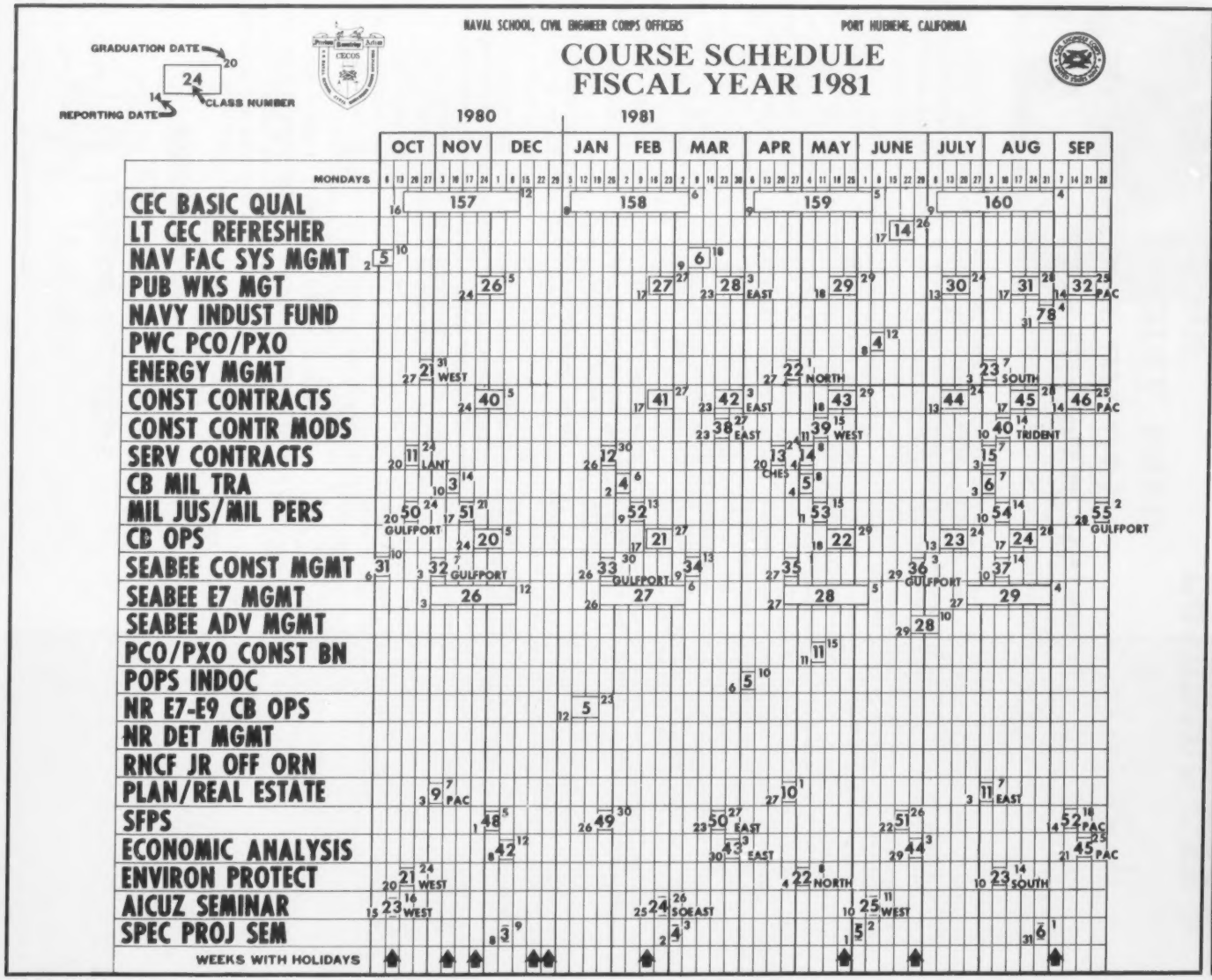
Editor's Notes

- So, the reader may ask, what's with this edition . . . an editorial, guidelines for publication, and readers survey results? Really, quite elementary, inasmuch as this year marks the 50th year of publication for *The Navy Civil Engineer*, through predecessor periodicals, and through the Naval Facilities Engineering Command (NAVFAC) predecessor, the Bureau of Yards and Docks (BUDOCKS). Hopefully, publication of this material will stimulate the submission of better material . . . for better readership . . . and, a better quarterly. Next issue, a more formal feature will be presented concerning the growth of the publication since it was known as the *Bureau News Memorandum* and first hit the streets on August 31, 1925.

- We wish to again acknowledge the talents of William E. Brack, artist/illustrator, who has accompanied the present editorial staff through 14 years of near-hysteria in producing TNCE. His most recent contributions are found on pages 3 through 7 and 24 and 25. William resides in the inner reaches of Headquarters, Naval Facilities Engineering Command, and produces a wealth of graphic illuminations.

- Now, for those who are a bit puzzled about the *last chapter of a cliff-hanging mystery*, found in the lower left column of page 5, translation of foreign words and phrases are:
beignet (Fr.) a fritter; *lashkar* (Hind.) army, a body of soldiers; *chapote* (Mex. Span.) persimmon; *chantier* (Can. Fr.) log hut, shack, yard, shipyard; *Kennst du das land wo die citronen bluhn?* (Ger.) Know'st thou the land where the lemon trees bloom? *joya* (Sp.) jewel; *bahut achcha* (Hind.) all right, very well, O.K.; the usual servant's reply on receiving instructions.

Announcing FY81 CECOS Course Schedule



For further details call or write:
Naval School, Civil Engineer Corps Officers
Code C20
Port Hueneme, CA 93043
Autovon: 360-5655
Comm: (805) 982-5655
FTS: 799-5655

"old-fashioned and outdated ideas...."

By RADM PAUL R. GATES, CEC, USN
Director of Resources Management
Headquarters, Naval Material Command

As I look around the Navy today, it is clear that the NAVFAC family continues to be highly respected in both Navy and civilian circles—a respect that extends both collectively and individually to the Civil Engineer Corps, the Seabees, and the civilian members of the NAVFAC family. It is manifested in many different ways, such as the new NAVFAC responsibilities in the Mediterranean, the heavy Seabee involvement in woldwide operations ranging from Diego Garcia support of Indian Ocean operations to disaster recovery assistance in the Caribbean, and the assignment of CEC officers to challenging and non-traditional positions. We are looked upon as professionals.

We rightly take pride in calling ourselves a professional organization, and we enjoy the fine reputation built up over many years by our predecessors. The accolade of "professional," however, is just as delicate as the individual "service reputation" that we all have (like it or not)—it takes a long time to build, is important in our daily lives, and is susceptible to rapid damage.

In an age when it seems to be more and more socially acceptable to blame external influences, or the "system," or "they," for failure, it is critical that we retain our individual sense of responsibility and recognize that the overall standard of excellence depends on reinforcement by our discrete individual actions and demonstrated performance.

External influences have been increasing—Congressional, legislative, regulatory, environmental, social, single-issue pressure groups, etc.—and they do make it more difficult now to achieve desired results than perhaps was true in a previous and simpler world, but in many ways they just make our challenges greater than ever before. "They" can never be used as an excuse for turning in less than a truly professional effort.

Professionalism is made up of both external and internal characteristics. External characteristics include appropriate education, specialized training, experience, participation in professional organizations and societies, professional registration, and so forth. All of these are important and necessary as the public manifestations of professionalism. They are of little value, however, unless they overlay a solid foundation of internal characteristics.

By "internal" I mean individual dedication to doing the best job we can at all times and under all circumstances. This includes accepting responsibility for our actions, giving the boss the best advice we know, and pride in our own authorship. Also making the extra effort that turns a good product into a superior one, helping somebody else even if we don't get personal credit, and doing the right thing instead of the easy thing. All of this leads to going home at night satisfied that we gave it everything we had that day. It includes honesty, reliability, trustworthiness, and personal integrity. It also includes insisting on professionalism from our subordinates and from the architects, engineers, and contractors who work with us—not just the legal minimum.

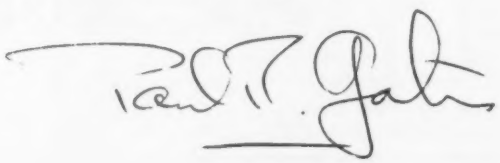
These internal characteristics are equally applicable to any particular discipline or field of endeavor, to any level from office messenger to Admiral, and to both military and civilian.

This kind of individual professionalism cannot help but breed organizational professionalism, which in turn attracts outstanding people, leading to better performance, and so forth. But the lack of individual professionalism will just as surely start the wheel going the other way. And we can't sit by and ride along on the coattails of our predecessors or compatriots—it is up to each one of us, day by day, to earn the title of "professional."

This is not intended to be a cry of alarm, since I do indeed have every confidence that the future will be even better than the past, but I believe that our professional reputation needs and deserves conscious and deliberate attention if it is to be as good as we want it to be.

Is it an old-fashioned idea? Yes.

Is it an outdated idea? Emphatically not.



Qualified engineering students may earn over $700 a month prior to graduation

☐ Students must be a U.S. citizen, between the ages of 19 and 27½ years, and within 12 months of graduation and enrollment at an institution accredited by the Engineers Council for Professional Development . . . .

☐ and meeting current scholastic and physical standards upon acceptance into the program, they will be placed on active duty as Officer Candidate, Seaman (E-3), prior to receiving their baccalaureate degrees . . . .

☐ upon graduation they will be required to complete Officer Indoctrination School, Newport, R. I., and the basic course of instruction at the Naval School, Civil Engineer Corps Officers, at Port Hueneme, Calif. . . . .

☐ following completion of Officer Indoctrination school, and commissioning as Ensigns, Civil Engineer Corps, U.S. Navy, they will be obligated to remain on active duty for four years.

☐ Applicants are not limited to civil engineering but are eligible if completing degrees in *mechanical, electrical, ocean, petroleum, construction* or *architectural engineering.* Applicants enrolled in architecture must be pursuing study programs of at least five years duration in an institution accredited by the National Architectural Accrediting Board.

For further details
Call toll free
Naval Recruiting Command
800-841-8100
or nearest
Civil Engineer Corps
Contact Officers
listed at right

Civil Engineer Corps Contact Officers

☐

LT David W. Gorden, CEC, USN
Code 09MB
Naval Facilities Engineering Command
200 Stovall Street
Alexandria, VA 22332
Commercial (202) 325-0312
Autovon 221-0312

☐

CDR Donald L. Carnell, CEC, USN
LT Kurt Ludwig, CEC, USN
Code 90 Northern Division
Naval Facilities Engineering Command
Philadelphia, PA 19112
Commercial (215) 755-3953
Autovon 443-3953

☐

LT Charles H. Schneider, CEC, USN
Code 09BN
Atlantic Division
Naval Facilities Engineering Command
Norfolk, VA 23511
Commercial (804) 444-7331
Autovon 690-7331

☐

LCDR Charles Fehlig, CEC, USN
Code 09BA
Southern Division
Naval Facilities Engineering Command
P.O. Box 10068
Charleston, SC 29411
Commercial (803) 743-4770
Autovon 794-4770

☐

LCDR William L. Scarborough, CEC, USN
Code 09B1
Western Division
Naval Facilities Engineering Command
P.O. Box 727
San Bruno, CA 94066
Commercial (415) 877-7490
Autovon 859-7490

☐

LT William M. Saltenberger, CEC, USN
Navy Public Works Center, Bldg 1A
Great Lakes, IL 60088
Commercial (312) 688-2324
Autovon 792-2324

☐

LT Joseph W. Taylor, CEC, USN
Naval School, Civil Engineer Corps Officers
Port Hueneme, CA 93043
Commercial (805) 982-5655
Autovon 360-5655

☐

Engineering Students

See inside covers for details concerning an exceptional opportunity leading to a commission in the U.S. Navy!

Commissioned in the Navy's Civil Engineer Corps, engineering graduates attend the Naval School, Civil Engineer Corps Officers, prior to duty assignment.

Military readiness—isn't that what the Navy is all about? Students receive field combat training to prepare them as potential Seabee officers.

Contract administration, facilities planning and facilities maintenance are key courses of the Naval school located in Port Hueneme, Calif., midway between Los Angeles and Santa Barbara.

Naval School
Civil Engineer Corps Officers
Port Hueneme, Calif.

Naval customs and traditions are a hallmark of the school and culminate in graduation—which sends the new officer into the Navy's civil engineering world.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1979-683-206